



The Salton Sea

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the salton sea

YESTERDAY
AND TODAY

by
Mildred de Stanley



Illustrated by Joseph Johnson
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PREFACE

The Story of the Salton Sea, the Coachella and Imperial Valleys is so vast a subject that a book of this scope can only give the highlights of its exciting background. But even a brief account of the exploits of the pioneer developers and the people who fought to save the valley from the turbulent Colorado is a story worth telling. For material in "The Salton Sea — Yesterday and Today," we wish to acknowledge and thank:

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The beautiful Salton Sea, a sparkling turquoise blue in the desert sun, advertised as the ideal place to spend your weekends and vacations, with marinas, yacht clubs, air-conditioned luxury motels, this is the picture we have of this fascinating area today. True, some of us rough it and take a four wheel drive into the back country, but always with the luxuries of civilization not too far away. But what many of us do not realize is that the Salton Sea, Coachella Valley, and Imperial Valley were an uninhabited desert wasteland only a little more than seventy years ago. This is a story of these times, so strange, so far removed from our way of life, that they seem almost unbelievable.

The Salton Sea was born of a man's mistake, and the struggle to save the valley was a desperate fight, in which the "Red Bull" as the mighty Colorado was known, almost covered the whole valley with a vast inland sea. The fight to stop the Colorado was only part of the story, the men themselves, their courage, the struggle to settle the valley, the families who fought to make a home on the inhospitable desert, the dissensions of the settlers, developers and railroad, make this land of marinas, and luxury homes seem like another world.

But to go back to the ancient beginning of these valleys to the time of our Indian predecessors, through the early explorations, the first land development, the conquering of the Colorado, and the story of our own Salton Sea, is a journey into the past that you will never forget.





The Colorado Desert, also known as the Salton Basin, extends from San Geronio Pass, between the San Bernardino and San Jacinto mountains. The basin, earlier named the Cahuilla Valley, has the general form of a triangle—the west bank of the Colorado River forming its base, the Cocopah, Superstition, and Santa Rosa mountains its southern side; and the gradually converging line of the Chocolate, Chuckawalla, and San Bernardino mountains its northern side. The apex of the triangle lies at the summit of the San Geronio Pass, and the extreme length of the triangle is about 185 miles and its width at the base is about 75 miles.

Several million years ago, an inland sea, which included the present Gulf of California extended through Imperial and Coachella Valleys. Then came a tremendous upheaval which formed the mountain ranges, located to the east and west of the valley. At this time, the entire area came up from the sea.

Dr. William P. Blake, a geologist with an early exploring party, made a close study of the Colorado Desert region for more than fifty years. He later became Professor of Geology at the University of Arizona. His reports of the country are models of their sort, and the following geological descriptions are from his reports.

"That this valley was formerly occupied by sea-water is shown by the reefs of fossil oysters and other marine shells. As these fossils are now above tide-level, it is evident that there has been a considerable uplift of the whole region, and a change from marine to fresh water conditions.

"Such, no doubt, were the conditions in Middle Tertiary times. The waves of the gulf then washed the slopes of the San Jacinto and San Bernardino where we now find arid mountains and desert plains.

"The silt of the Colorado was distributed far and wide in the interior sea, only partially cut off from the broad Pacific by a chain of islands which now form the crest of the peninsula mountains from San Jacinto to Cape St. Louis.

"As the land gradually rose from the waves, beds of oyster shells and of other forms of marine life came into view and may be seen today a thousand feet above the valley on the sides of the San Jacinto Mountains. Such evidence of the former marine occupation of the valley are particularly strong and convincing along the eastern base of the peninsula mountains where marine fossils of the Tertiary period are numerous, especially in the stratified formation along Carrizo Creek. Many of these fossil shells were observed in 1853 by an early exploration party."

Geologists point out that the desert valley belongs to the type which is described as constructional, an area which has been depressed as the crustal movement, as contrasted with valleys due to erosion. Its rock-floor or bottom

is below sea-level even those parts north of the Gulf where the actual surface is well below the sea. This indicates a subsidence of the earth's crust. A marked fault-line in the mountains show that the Valley simply dropped at some time or other, either slowly or suddenly.

Following this giant upthrust, the central portion of the Imperial and Coachella Valleys began to settle to a huge depression. As this enormous trough formed, the Colorado River began its meandering across its delta area, depositing its silt that eroded from 240,000 square miles of its drainage areas, and the deep canyons that were cut away, over the centuries. To have some idea of the magnitude of this task, performed by the mighty river, picture the vast erosion of the Grand Canyon, and this silt from this great chasm was carried by the river to the Gulf of California.

The delta eventually extended itself for hundreds of miles into the Gulf of California, as well as to the west and north through Imperial Valley and Mexicali. It is not known exactly how deep the river silt is in Imperial Valley, but in certain places it reaches a depth of 12,000 feet.

Entering the gulf just below where the mouth of the Gila River now is, it began dropping its load of debris and silt, forming the raised delta which gradually extended westward and southerly across the upper end of the gulf toward the Cocopah Mountains and finally to the higher ridges beyond the Pattie Basin—even to the eastern base of the peninsula mountains. Aided by the gradual elevation of the land and by the tides of the gulf, the building up of the delta proceeded gradually.

It is assumed that the nature of the great dam or levee stretching across the gulf and diverting the river water through shifting channels to one side or the other, first to the lower part leading to the gulf and then to the upper end of the depressed area, shut off the tides.

There must have been periods of many years when the entire flow of the Colorado River was into the Imperial Valley, and it is believed that during two long periods, the entire area was a huge fresh water lake.

Ravines Cut in Colorado Desert by River Overflow. (This picture was published in Dr. Blake's report to the Government in 1853. The cuts are identical with those made in the New and Alamo River beds in 1906.)





According to Blake, the head of the gulf, being cut off by the delta from the free access of the sea, became an inland lake of salt water, or at least of brackish water, with the great Colorado River at certain seasons and stages of flood flowing into it. The stream then, as now, was laden with the rich alluvial earths of its upper course, torn from the ravines and canyons of the Rocky Mountains and the Grand Canyon of Arizona. This influx of river-water, though variable in duration and quantity, must have exceeded the loss by evaporation. Consequently the level of the lake was raised until the excess overflowed to the gulf by a lower outlet.

That such conditions continued for centuries appears certain, for the enormous accumulation of sediment within the old beach-lines tells the story of long-continued lacustrine conditions, of the displacement of the sea-water, and of the final occupation of the valley by fresh water. This is shown to us by the fresh-water shells, not only on the surface but in the blue-clay sediments, in the banks of ravines and arroyos, and in the deep borings for water, showing that the shells dropped to the bottom and were thus entombed. These fresh-water shells are so abundant in the lacustrine clay of the desert, especially at the northern end, that they accumulate in windrows before the wind. The thin pearly shells of anodonta are common in the clay about Indio. Four or five species of univalves, new to science, were collected in 1853.

The long-continued existence of such a lake is shown, not only by the fossil shells, but by the ancient shore-lines and beaches, as fresh as if recently left by retiring waters, and especially vivid and convincing north of the delta, where they are visible for miles.

At an outlying mass of rocks at the base of the main ridges of the peninsula or San Jacinto Mountains, a deposit of travertine marks the former height of the water by a thick incrustation, covering the granite boulders from view. The foundation rock must have been a small islet of granite projecting above the waves of Lake Cahuilla. It is now known as Travertine Point, and its base was nearly reached by the rising waters of the Salton Sea in 1907.

Blake later wrote of crossing the valley from Mecca on the Southern Pacific Railway, and visiting the then rising Salton Sea, skirting it to Travertine Point. In 1906, his second visit a half century after its discovery in 1853, he noted that the old water-line and beaches were comparatively unchanged in appearance. Concentric lines of sparse vegetation marked where the waters had stood centuries before.

The former lake, the shores of which are recorded on the rocks and slopes of the Cahuilla Valley north of the delta, had an area of about 2,100 square miles. It was 100 miles long and about 35 miles at its widest point. It was first identified and described by Blake in 1853, in communication to

the San Francisco Commercial Advertiser, edited by J. D. Whelpley, in the winter of 1853-54, and later in reports of Exploration and Surveys for a Railroad Route from the Mississippi River to the Pacific Ocean. Its boundaries were then approximately shown and its origin explained.

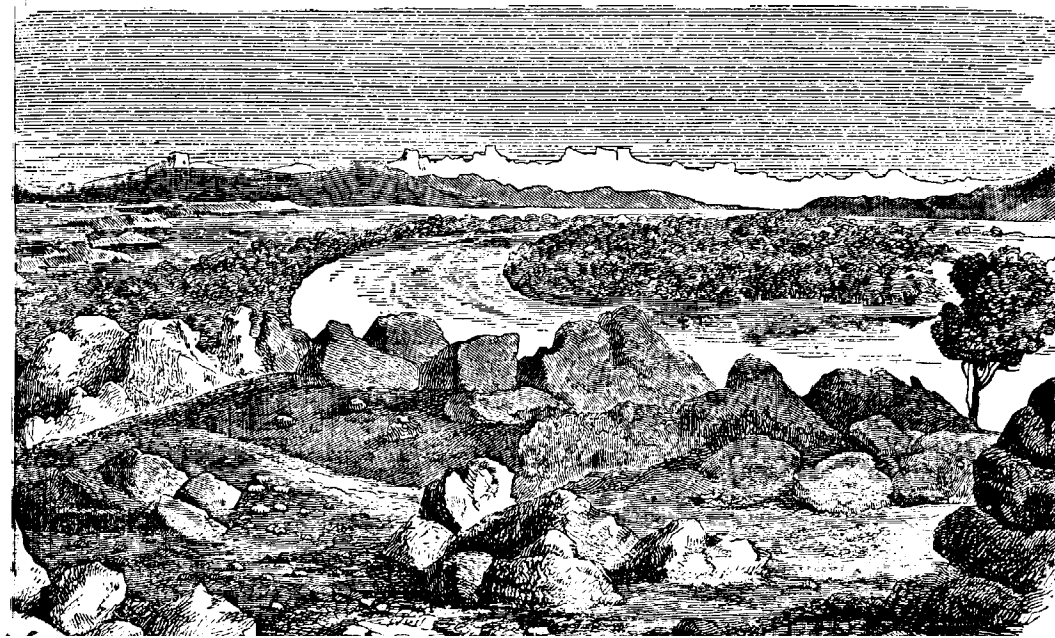
Blake named it "Lake Cahuilla" from the name of the valley and of the Indian tribe. He felt that the name "Salton" was appropriately applied to the modern inflow and partial inundation of the valley covering the salt-beds at Salton, but that the ancient lake in its entirety required a distinctive name. Blake's description of the lake follows:

"Lake Cahuilla occupied the northwestern end of the basin of the California Gulf—that portion cut off from the sea by the delta deposits. The northwestern part of the valley is also known as the Cabezon or Cahuilla Valley, so named from the Cahuilla Indians, who have inhabited the oasis and tillable fringe of the desert from time immemorial. There is a difference of opinion regarding the proper orthography of this name. It was discussed by Dr. David Prescott Barrows in the Ethno-Botany of the Cahuilla Indians of Southern California.

"A word should be said as to the pronunciation and spelling of the tribal name, Cahuilla. The word is Indian and the tribesmen's own designation for themselves, and means 'master' or 'ruling people.' There is some slight variation in its pronunciation, but the most usual is probably kow-wee-yah, accent on the second syllable. The spelling has been various. That used by the early writers and correct, according to the value accorded to ll in Spanish-American, is that adopted here—Coa-hui-lla."

Blake, in the year 1853, when passing through the "Ka-wee-yah" or Four Creek County in California, with Lieutenant Williamson, in the endeavor to conform phonetically to the Indian name, wrote it "Cohuilla," and sometimes "Cahuilla." This last form seems to have been more generally accepted and is preferred to Cohuilla, Coahuilla, or any other.

The Colorado River from Pilot Knob. (From Blake's Report, 1853.)



DESICCATION OF LAKE CAHUILLA

With our present knowledge of the delta deposits of the Colorado, the varying phases of the stream, the lightness and depth of its deposits of silt, its quicksands, its shifting channels, and uncontrollable ways, it is easy to realize that the inflow to Lake Cahuilla must have been extremely variable and uncertain. We can realize that under favorable conditions the whole volume of the Colorado may have been diverted alternately to the lake and to the gulf, and that long intervals of drought accompanied by drying up were often experienced.

Writing upon the subject in 1853, Blake quotes an early government report on the traditions of the Cahuilla Indians:

"The explanation of the formation of the lake and its disappearance by evaporation which has been presented, agrees with the traditions of the Indians. Their statement that the waters retired poco-a-poco (little by little) is connected with the gradual subsidence due to evaporation, and the sudden floods of which they speak undoubtedly took place. It is probably that the lake was long subject to great floods produced either by overflow of the river at seasons of freshets, or by a change in its channel, or by a great freshet combined with a very high tide, so that the river became, as it were, dammed up and raised to an unusual height. The present overflows, though comparatively slight, are probably similar; and yet it is possible that the interior of the desert might be deluged at the present day, provided no elevation of the land has taken place, and the river should remain at a great height for a long time—long enough to cause the excavation of a deep channel for New River."

Evidently, in the case of the ancient Lake Cahuilla, with the loss of the supply of water from the Colorado the lake disappeared by evaporation. The conditions for this were extremely favorable. Of the rate of evaporation and the time required for the complete desiccation of the valley, we have no direct evidence, but there is every reason to accept the statement of the Indians that the water retired little by little, or very slowly, and no doubt years passed before the lake dried up.



GEOLOGY AND MINERALS

The mountain ranges, which figuratively frame the valleys, rise wall-like on both sides of the Cahuilla Valley and the desert. Those on the west are the most abrupt and rugged, and form a complete separation between the delta region and the Pacific Ocean. These are the San Jacinto ranges of the Peninsula Mountains. San Jacinto, the highest peak, stands at the south end and on the south side of the San Geronio Pass, which separates it from the massive ridges of San Bernardino. Both of these mountains rise to an altitude of over 11,500 feet above the sea. The white snow-covered summit of San Bernardino is a conspicuous object for a large part of the year. San Jacinto does not attract so much precipitation, but is a very sharp and picturesque peak.

Geologically, these mountains are essentially crystalline and granitic. The Peninsula ranges north of the boundary line consist chiefly of granite and syenitic rocks, in which there is an unusual amount of the mineral known as schorl, or black tourmaline. Gneiss and micaceous schists are largely developed and are sharply upraised and placated, forming extremely rough and jagged croppings, especially on the side bounding the desert, where there is but little soil. Owing to the desiccation of the wind from the sea, the scanty precipitation is insufficient for mountain streams of much volume. The few brooks or rivulets of the higher ridges in their descent to the valley in the rainy season are quickly absorbed or dissipated by evaporation on reaching the lower slopes.

On the seaward side of the mountain range the conditions are very different and many small and fertile valleys are found.

Amongst these, Warner's, so named for the pioneer settler, Don Juan Warner ("Juan Largo"), a tall New Englander from Lyme, Connecticut, was a great haven of rest in the early days for those who had survived the terrors of the desert in the 90 mile journey from Yuma to Carrizo Creek, without water.

These granite ridges from San Jacinto, southward, through San Diego County, have become noted for the superb gems taken from many places, more particularly for red, green, and pink colored tourmaline, obtained by patient mining. The rock generally may be said to be characterized by the abundance of the ordinary black tourmaline or schorl. Amongst the other gem-stones, the rare form of spodumene, a lithia mineral known as kunzite, is obtained here in beautiful purple or violet-colored crystals. Garnets and beryls are also obtained in these mountains. The beryls are sometimes colorless and almost as brilliant as diamonds, and are often tinted a pale rose-pink, greatly enhancing their beauty.

The mountains on the north side of the great Cahuilla Valley are also granitic and form a series of sharp ridges in constant sequence, separated by gravelly slopes and valleys for a great distance up the valley of the Colorado. Some outcrops have been worked for gold in the mountain ridges a few miles north of Indio, and also at Craga Muchacha, near Yuma.

The geology south of the international boundary is but little known. At the Sierra Giganta, between Muleje and Loreto, there are precipitous cliffs of red sandstone.

MUD VOLCANOES

In the year 1852, Major Heintzelman, U.S.A., then commanding at Yuma, was surprised to see clouds of steam arising from the southwest portion of the desert. Visiting the place he found a great eruption of hot water and mud, with jets of steam, issuing from conical hillocks of mud. Masses of dark-colored mud were thrown to a height of 40 feet.

An excellent graphic description was given by Dr. David P. Barrows in 1900. He observes:

"The volcanoes are doubtless immediately due to the infiltration of water from the Colorado overflow down to the heated beds of rock not far beneath. Converted into steam, these waters burst violently upward through the deposits of silt, and around their orifices throw up encircling walls of mud."

Dr. D. T. MacDougal described the volcanic phenomena as follows:

"Hot springs and other manifestations of volcanic energy are to be found all along the geological axis on the eastern side of the Peninsula of Baja California, but the most pronounced feature of this character is to be found well out in the delta, near Volcano Lake; here, on a saline plain, a few miles in extent, innumerable small mud cones, solfataras, and boiling pools of mud and water emit steam, smoke, and sulphurous gases, accompanied by a dull rumbling sound.

"According to the traditions of the Cocopah Indians, a member of the tribe accused of sorcery, or other serious crime, was sent back to his evil master by the simple process of dropping him into a pool of boiling mud—an obvious entrance to his abode below."

The Mudpots Photo by Dick Whittington



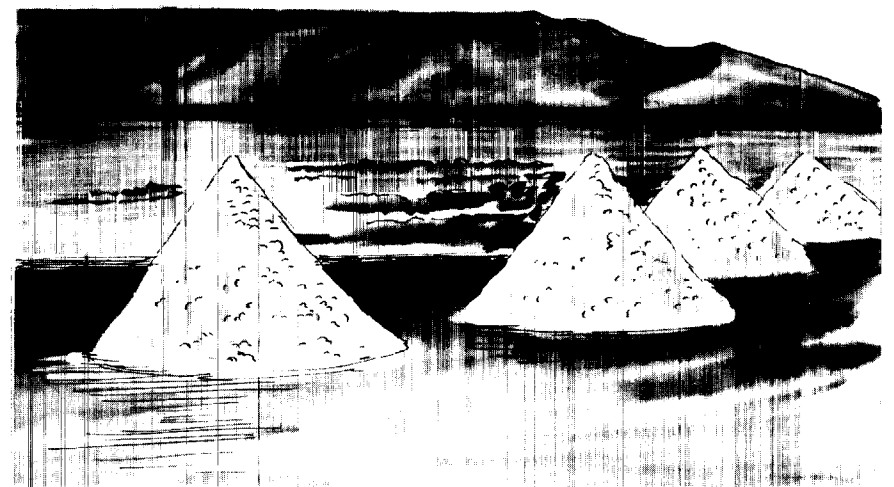
SALT

The accumulation of salt in the lowest part of the desert was well known to the Cahuilla Indians, who resorted to it for salt for an unknown period. Being a little off the trail or road then traveled from Yuma to the settlements in California, it was not often visited or seen by the early explorers, who, after the long journey of 90 miles without water, pressed forward without delay to the shades and springs of potable water on the seaward slope of the mountains at Warner's Ranch.

Emory, 1848, mentions the salt lake as three-quarters of a mile long and a half mile wide, and that the water had receded to a foot in depth. The salt-bed was conspicuous in 1853, at the time of Williamson's survey. Its precise position was not ascertained. It was said that it was sometimes flooded with water, which was supposed to have reached it from the overflow of the Colorado, through the channel of New River. Evidently this occasional submergency and desiccation must have caused a great difference of appearance at different times, the depression when dry being sheeted with salt, and when flooded appearing as a shallow lake of briny water.

This bed of salt, when not flooded, was extensively exploited by the New Liverpool Salt Company. Shipments were made from the Salton Station on the railway for many years, until the last overflow, which destroyed the industry.

In 1892 the lake was described as a salt marsh connected by a branch railway with the main track of the Southern Pacific road. At the end of this track, some 15,000 feet west of the railway, a well was bored by the company to a depth of 300 feet. The top material largely consisted of black mud resting on a crust of salt, a mixture of the chloride and chloride of magnesium, 7 inches thick. On passing through this crust the drill dropped through 22 feet of a black ooze containing water of 50 per cent, sodium and magnesium salts, fine sand, iron oxide, and clay. It rested on hard clay, through which the drill passed for the remaining distance, 277 feet, varied only by two or three streaks of cement.



The inflow of water from the Colorado River in 1891 is described as follows:

"In the month of June 1891, a steady flow of water entered the depression (of the salt lake) from the southeast and continued to the northwest uninterruptedly until an area 30 miles long and averaging 10 miles in width was covered to a depth of 6 feet, measured at the end of the Salton Salt Works' branch track."

This influx of salt water gave rise to the idea that the water of the gulf had penetrated through some underground channel, but no such channel could be found. It was fancied that the soft, briny ooze might extend under the crust beyond the marsh even to the gulf, and so obtain the supply of salt water enriched by passing into and through the ooze. The water, however, entered the basin through the New and the Alamo River channels which led from the lower delta region overflowed by the unusually severe Colorado River flood, exactly as occurred again in 1905 and 1906.

In the year 1907, according to the report by Dr. Stephen Bowers to the State Mineralogist of California, the recorder's office at San Diego showed that more than 450,000 acres of land had been located for petroleum in the Colorado Desert Mining District, in San Diego County.

Asphaltum was reported in 1891 by Dr. Bowers, from the Fish Creek District, southwest from the Mesquite Company's wells. Asphaltum occurs there and at Superstition Mountain.

Gold-bearing quartz veins are found in the mountains north of the desert. One was worked at Carga Muchacha, and the ore was milled at Pilot Knob for several years.

Deposits of sulphur in the Cocopah Mountains were worked in a desultory, intermittent way for many years. Common report assigns a considerable quantity to the locality on the west side of Volcano Lake.

Attention was early directed to the adaption of the desert soil to agriculture, as shown in the official report to the War Department in 1855.

"The upper or gravelly plains of the desert, especially those in the vicinity of the mouth of the Gila, are too arid and wanting in soil to be ever used for agriculture. But this is not so with a large part of the desert—the part formed by alluvial and lacustrine clay. The whole of this clay surface may be considered as capable of supporting a luxuriant growth of vegetation provided it is supplied with water by irrigation.

"The Cahuilla Indians in the northwestern part of the desert raise abundant crops of corn, barley, and vegetables in the vicinity of the springs at their villages. We also observed a dam at the Cahuilla villages on the northern margin of the desert, where we stopped over night. The ground was principally clay, which by drying in the sun had become very hard, but on being cut and pulverized by the passing of the rain, became dry and dusty, like dry ashes. On cutting down into it for about 12 inches it was found to be more sand and micaceous. It appeared to be a rich soil, for wherever water reached the surface the vegetation was abundant; and a large area near the mountains was covered with a dense growth of weeds, the ground being moist.

"The vegetation around the springs was luxuriant; and wherever the soil was moistened it supported either a growth of grass or of rank weeds. The

Indians had their houses in the thickly growing mesquite trees around the springs. A growth of weeds was noted over a wide area near the mountains, but not far from the cultivated field."

Samples of the soil, taken for analysis, showed the presence of all the elements necessary to fertility. It is added:

"From the preceding facts it becomes evident that the alluvial soil of the desert is capable of sustaining a vigorous vegetation. The only apparent reason for its sterility is the absence of water; for wherever it is kept moist, vegetation springs up.

"If a supply of water could be obtained for irrigation, it is probable that the greater part of the desert could be made to yield crops of almost any kind. During the seasons of high water, or of overflow of the Colorado, there would be little difficulty in irrigating large areas in the vicinity of New River and the Lagoons.

"By deepening the channel of New River, or cutting a canal so low that the water of the Colorado would enter at all seasons of the year, a constant supply could be furnished to the interior portion of the desert. It is indeed a serious question whether a canal would not cause the overflow of a vast surface and refill, to a certain extent, the dry valley of the ancient lake. This is possible and would result, provided no change of level has taken place since the water dried up."

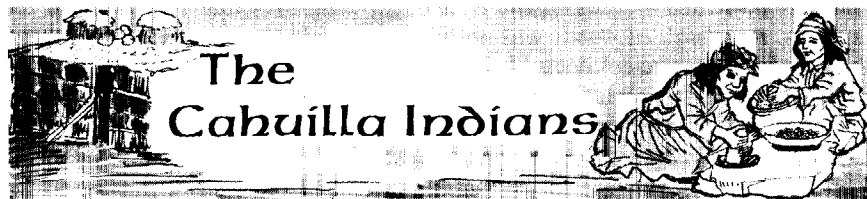
These government reports were later to excite the imagination of the pioneers who were responsible for the canals and later inadvertently the forming of the Salton Sea. But before they came, the earlier inhabitants, the Cahuilla Indians, left their mark on this fertile territory.

Otis B. Tout, in his book "The First Thirty Years," a history of Imperial County, wrote of the vegetation:

"The principal plants of the desert found near water or in the beds of arroyos were the mesquite, the screw bean, the palo verde, the creosote bush, the California palm, and the salt weeds. After rainfall at certain seasons of the year, beautiful flowers spring up and where the ground is frequently overflowed, pigweed, arrowweed, willows and cottonwood abound.

"The remarkable palms found in the Borrego Valley and in Palm Canyon are evidently the remains of a vast growth of these stately trees that fringed the shores of the ancient lake."





As noted previously, the name Cahuilla was an Indian name, and these primitive people's own name for their tribe. The tribe had three divisions: Desert Cahuilla, Mountain Cahuilla, and Western (or Pass) Cahuilla.

The northern end of the Colorado Desert, as it was known, down to about Salton Sea, was the territory of the Cahuilla. In native times it appeared most forbiddingly desert. But its tremendous depression brought the ground waters near the surface, so that in many localities mesquite trees thrived and the Cahuilla obtained water in comparatively shallow wells. The people here were Desert Cahuilla.

The southern end of the valley, watered by the New River, was in possession of the Cocopah, Kamia, or other Yuman groups.

The third division lived in the mountains south of San Jacinto Peak, chiefly in fairly watered canyons well up the less favored side of the range, overlooking the inland desert, as at Santa Rosa, Los Coyotes, and San Ygnacio. At one point these people were across the divide, in Pacific Ocean drainage. This is the district centering in the patch known as "Coahuila Reservation"—though it harbored only a small minority of the entire group—on the head of the Santa Margarita. The elevation of these habitats was from 3,000 to 4,000 feet. The speech was said to be distinguishable from that of the desert; but the difference was insignificant, and the desert and mountain divisions might be grouped together.

PLANT FOODS

The principal supplies of food drawn from plants by the Cahuilla are rather accurately known, and while somewhat more varied than usual owing to the range of the group from low desert to high and fairly watered mountains, may be considered typical of the Indians of the southern part of the State.

Oaks, of course, require reasonable precipitation and moderate elevation, so that they were available in quantities to only a part of the Cahuilla; but the acorns were utilized wherever obtainable and treated as by the other California Indians.

In the sunken desert, where the roots of the mesquite can in many places penetrate to ground water, the fruit of this tree was the staple food. Both the bean or honey and the screw mesquite were employed, the whole fruits being ground in wooden mortars.

Agaves and yuccas were less vital to the Cahuilla than to the mountain tribes of western Arizona, but were made use of in the same way. The thick, short, succulent, sweet stalks were roasted in stone-lined and covered pits. The waxy flowers as well as the fruits of some species were eaten cooked.

Nearly every variety of cactus was made use of. Most generally, the fruit was consumed, but the fleshy stalks or leaves of some species helped out when diet became scant, and sometimes buds or seeds are edible.

The native palm bears clusters of a small fruit which was not neglected.

Nearly every conifer, from pine to juniper, had its seeds eaten. The most important variety is the Nevada nut pine, seeds of which were harvested by the Cahuilla, the cones being roasted to extract the nuts.

Many plants furnished what is usually known by its Mexican name pinole—that is, seed flour. The most important kind was chia, Cahuilla pasal. Other sages and a variety of plants were also used. These were all gathered with the seed beater, parched or roasted with coals shaken in a basket or pottery tray, and ground. The meal was eaten dry, boiled, or baked into heavy doughy cakes, according to the species.

California is nowhere a berry country. The Cahuilla have available several varieties which are rather of the nature of small fruits. In some of these the seeds are perhaps of more food value than the flesh. Thus, in the wild plum, the kernel of the pit is crushed, leached, and boiled like acorn flour. Manzanita is treated similarly. The berries of the elder, and of sumac, are also dried. The influence of acorn-seed processes in the use of these food materials is evident.

Root part of plants are of little service to the Cahuilla, whose dry habitat allows but a sparse growth of the lily-like bulb plants that are important farther north in the State. Flowers, on the other hand, are often thick and sappy. Those of species of yucca, agave, sumac, and ocotilla were boiled, either fresh or after drying.

Altogether more than 60 varieties of plants are known to have served the Cahuilla as food in one form or another, and the whole number may have been twice as great. It is obvious that a non-farming people living in a country of little game and limited fertility would be likely to leave no source of wild plant food idle which lay within their capacity to utilize. Thus, grinding and drying stand out among the Cahuilla; the seed beater is more important than the digging stick.

The Cahuilla used mortar and metates (grinding stones) to grind their mesquite beans, seeds and other foods. They were also skilled basket makers, of a rather heavy but regular basketry. The baskets were normally buff in color, while red and brown lengths of stem served as designs, and even olive and distinctly yellow shades could be obtained. Only black was produced by dyeing. The prevailing pattern arrangement was one of encircling bands.

Pottery was also fashioned by the Cahuilla, a coiled and smoothed unslipped ware, made of clay that burned red, with tempering of crushed rock; very thin walled, light but fragile and porous.

These friendly, intelligent people were not in the path of the Mission civilization and remained relatively free and unspoiled by the white man's cruelties. However, other Indians came from the areas under Spanish and Mexican influence and the Cahuillas adopted many of the customs of Mexican origin as time went by.

It is believed that simple, circular brush structures were erected by the Cahuilla before the arrival of the white men. These shelters were erected

over a circular excavation, with a vented roof to release the smoke from the fire used for cooking.

Caves were also used as homes, with a brush shelter fronting the dwelling. Some of the mountain tribes built sweat houses, where members of the tribe could take sweat baths. This was a common practice among most western Indians, but not with the desert Indians. However, with the many hot springs available, all of the Cahuillas were unusually fond of bathing.

The later Cahuilla house was thatched, but its original form has not been satisfactorily determined. The later houses were rectangular and set on forked posts, with a distinct ridge and considerable slope to the roof. Sometimes the walls were plastered with mud and adobe. This type of dwelling was undoubtedly influenced by the Mexican jacal or the American house, but to what degree is uncertain.

The ramada, or shade, was of the usual type; a roof of foliage on posts. In the desert it formed a sort of porch in front of the door, and was frequently surrounded in whole or part by a windbreak.

The Cahuillas also increased their larder with hunting. The mountain Cahuillas had the larger game, such as deer, bighorn sheep, and bear, while in the desert area every type of small animal and reptile was used for food.

The Cahuilla bow was long, narrow, thick, and unbacked. It was made of mesquite, sometimes of willow, or palm-leaf stem; in the mountains, probably of other materials. The thrusting war club with a thick cylindrical head was also used by the Cahuilla, and a flat rabbit-killing stick of the type used by all the Southern California Indians.

A very complete and interesting book on the Cahuillas has been written by Harry C. James, "The Cahuilla Indians", published by Westernlore Press.

Descendants of the early Cahuilla now live on their reservations in Riverside and San Diego Counties at least part of the time. Many Cahuillas have become integrated into the white man's civilization. All historians agree these splendid people were keen and intelligent, and a study of their way of life is indeed fascinating.



Considered the father of the Imperial Valley, Dr. Oliver M. Wozencraft was the first man to actually plan the reclamation of the desert sink for agricultural purposes by bringing the arid water of the Colorado River to the desert area.

Dr. Wozencraft came to California in the gold rush year of 1849 at the age of 35 years. He was a graduate in medicine and located in San Francisco, taking a position as Indian Agent for the government. His evident interest in the mysterious and strange was shown when he set out to visit the then almost unknown Colorado desert.

In May, 1849, he set out with several men, mules and a pack train and planned a careful investigation. From his personal diary we read:

"We at last reached this, the most formidable of all deserts on this continent. We found its basin filled with turbid water; crossing in an improvised boat made of ox hide, we encountered the desert.

"We started into the evening taking a trail that soon led us into sand drifts and as their walls were nearly perpendicular and as unsubstantial as a sand bank, we were compelled to halt.

"I set about prospecting to find a way out; there was a sand hill not far off; I climbed to the top and found that the sand drifts could be avoided by going to the bottom land near the river. On my return to the men, having fallen asleep, I found that the drifting sand had almost covered them up.

"We were some three days crossing the desert, and the extreme heat in the daytime compelled us to seek shelter under our blankets. The heat was so intense that on the third day two of my men failed. It occurred to me, as there was nothing I could do there, to mount my patient and gentle mule and at a distance of some eight miles I reached the border of the desert and water, with which I filled a bag and brought it back to them. It was then and there that I first conceived the idea of the reclamation of the desert."

Ten years later, in 1859, Dr. Wozencraft secured from the State Legislature of California all the state rights to 1600 square miles of the Salton Sink. The legislature passed this bill April 15, 1859. He lost no time but saw to it that a bill was presented in Congress in the fall of the same year. The following is the official description of the project:

"This bill proposes, in consideration of the introduction of a wholesome supply of fresh water into the Colorado desert tract as prescribed in the bill, to grant a tract of land. The tract embraces about 1600 square miles in the basin of what now is and must remain, until an energetic and extensive system of reclamation is inaugurated and brought to successful completion, a valueless and horrible desert."

Wozencraft was to obtain patents to the land upon completion of the reclamation work. The Civil War caused the project to be sidetracked by Congress, even after it had been favorably reported by the committee.

After the war he went back to Congress only to find it impossible to make an impression on the men so busily occupied with reconstruction problems.

It is interesting to note that in the testimony given by Dr. Wozencraft at one of the hearings, that his engineer, Ebenezer Hadley, County Surveyor of San Diego County, in reporting on the project, recommended a canal location which was practically identical with the one adopted 40 years later.

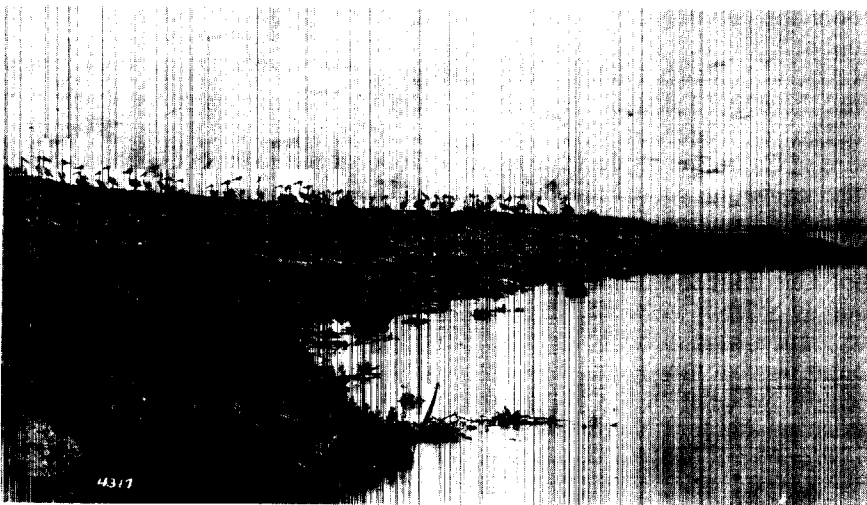
Hadley suggested that irrigation was practical, as water from the Colorado was available. He stated that he had found by actual survey, that there was a fall of 5 feet per mile available along the proposed canal route. He called attention to the necessity of carrying water into Mexican Territory. He proposed a canal 25 feet wide and 10 feet deep, which was to tap the river at the point of rock adjoining Pilot Knob and immediately above the International Boundary Line."

Wozencraft spent his entire personal fortune and the rest of his life on this project of bringing the Colorado River water to the desert, but the kindly physician's only mistake was that he was a half century ahead of his times.

During this period, several proposals were made to fill the Salton Sink with water from the Colorado River or the gulf. In 1873, Dr. J. P. Widney, an army surgeon, published some articles in the Overland Monthly urging the flooding of this sea, but none of these proposals were taken seriously.

On the eighties and nineties, Imperial Valley was used by cattlemen as a grazing ground. They would drive herds in from San Diego County and some would swim across the Colorado from Arizona. The overflow from the Colorado was regular enough to keep the low spots filled with water. Pepper and other grasses would grow around these small lakes, providing good feed for their stock.

According to Otis B. Tout, these lakes were seven in number. Pelican Lake, so called because of the thousands of pelicans that nested there, was directly west of where Imperial is now. Mesquite Lake, named from the dense growth of mesquite trees around it, was northwest of Imperial.



Pelicans Nesting at Salton Sea.

Blue Lake, named for the clear water it held, was west of Seeley. Cameron and Diamond Lakes were south of Blue Lake, towards the border. Laguna Lake, near where Calexico is now, is Spanish for the lake itself. These lakes were all cut out by the 1906 floods, except Mesquite Lake, which was drained to make more farm land.

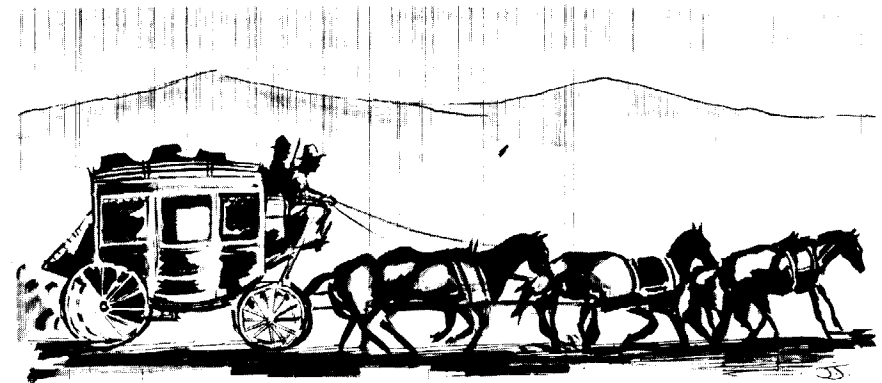
The Alamo was called the Carter River for sometime, but resumed its ancient name about 1904. Near Sharp's Heading was Buzzard's Roost before the canals were built. Thousands of buzzards perched on the mesquites there between their excursions over the desert area. Tales are told by early settlers of having to fight the buzzards away from the carcasses scattered near the wells.

In 1858, David Butterfield secured a contract with the government to carry the United States mail over a route between St. Louis and San Francisco twice a month. The distance was divided into "horse runs". One of the adobe buildings erected at Indian Wells near Seely was standing until 1906 when it was washed away during the flood. The route crossed the valley by way of Indian and Coyote Wells going northward through Carrizo Canyon, Warner's Spring and Los Angeles to San Francisco. Passenger fare was \$100 and the trip took from 22 to 25 days. This stage route was maintained until March, 1861, when the government discontinued its subsidy on account of the Civil War.

The San Geronio Pass was long known to the Indians and Dr. Blake stated that there was no trail, road or indication of a trail. According to Blake, it was an unknown pass in an unknown region, leading into a dreaded desert.

Although Blake was well acquainted with Don Juan Warner, and talked to him frequently about the desert, he did not mention this pass or any route through that portion of the desert.

The desert or valley region between the Colorado at the mouth of the Gila, and the peninsula mountains and Warner's Valley, was a much dreaded jornada without water or shade from the burning sun. It was usually traveled in haste and generally at night to escape the heat; and little time was given to the study of its phenomena. As a rule it was a race for life, from the time of leaving Vallecitos. To the greater number of travelers, there was nothing to note but a seemingly endless plain of desert and burning sands.



When the conquest of the west was under way, the Government at Washington was besieged with all sorts of requests for help to put over different schemes. The steam railroad, a comparatively new invention, was an attractive thing to promote. In response to demands for cooperation, the Congress agreed to pay the bill for surveys of possible road routes to the Pacific Coast. The order was signed by Jefferson Davis, then Secretary of War, under President Pierce's administration.

A party of Topographical Army Engineers was organized under the direction of Lieut. R. S. Williamson in 1853, and was sent west to find the most feasible routes for possible railroads. This party was well equipped. Williamson had as an assistant Lieutenant J. G. Parke.

The party composed of: "One minerologist and geologist; Dr. William P. Blake; one physician and naturalist; two civil engineers; one draftsman . . . accompanied by a mounted escort of three non-commissioned officers and twenty-five privates." Four six-mule teams, together with five teamsters and eight helpers, and most important, cooks.

At that time only Warner's Pass, the Techachapi, Tejon and El Cajon were known, and none of these offered especially easy routes or inviting grades. When the San Geronimo Pass was discovered, Blake wrote in his Review and History: "Imagine the enthusiasm with which the great unknown break in the mountain range between San Bernardino and San Jacinto was approached by members of the party as we made our way eastward from the region, then practically unoccupied but now known as Colton and Redlands, and found an easy grade and open country for our train of wagons to the summit, only 2,580 feet above the sea. This pass was evidently the true gateway from the interior to the Pacific Ocean.

The discovery of this practical and easy railroad route, determined the construction of a southern railroad and made it necessary to acquire from Mexico the strip of country in Southern Arizona, since known as the Gadsen Purchase.

As the result of these explorations, construction on the railroad of the southern route of Southern Pacific Railroad was begun in 1873. Trains were operated to Colton on July 16, 1875 and to Indio on May 29, 1876. With the completion of the southern route traffic was opened to New Orleans on February 5, 1883.

The building of the railroad was the beginning of a new era in the history of the Salton Basin area, with the railroad playing a vital role in the formation of the Salton Sea.



Canals & Irrigation- Land Sales

The building of the railroad stimulated great interest in the Colorado Desert and many early writers found it a fascinating subject. Blake wrote:

"The alluvions of the Colorado wherever deposited are known to be extremely fertile and valuable for agriculture. The delta has attracted great attention and is now being rapidly reclaimed for agriculture and settlement. It is reached by the main line of the Southern Pacific Railway and by a branch from it at Imperial Junction (Old Beach) to Imperial and Calexico.

The Coachella Valley (North Imperial) is now attracting the attention of settlers. The village and postoffice is on the railway between Mecca and Indio."

Blake points out that the name is a corruption, or a modified form, of the Spanish word. In his book he quotes an early writer, James:

"This is the world-famed Coachella Valley, yet the name is a misnomer. It was originally Conchilla, and is so named on the maps of the United States Geographical Survey. Conchilla means little shells and the name was given in early days from the fact that the whole valley of the Salton from the Mexican line as far north as Indio was covered with tiny fresh water shells."

Blake also wrote of the climate stating it was one of great heat, low humidity, long summers, and very sudden and large changes. He said that: "Moderate winds blow most of the time in hot weather, and these, together with the unusually low humidity, materially temper the effect of the high temperatures. He pointed out with few exceptions throughout the year, the nights are comfortably cool, the small amount of moisture in the atmosphere resulting in rapid heating of the air at sunrise and cooling off at sunset.

In the spring and early summer winds from the west and south often attain a high velocity for from one to a maximum of four days. They are rarely severe enough to do any damage. The average yearly maximum temperatures are between 115° to 120°, and minimum temperatures rarely falling below the freezing point, with an absolute minimum temperature of about 18°. Precipitation is small with the average annual rainfall at Indio a little less than three inches, making irrigation a necessary factor in the development of the Coachella Valley.

After the Southern Pacific has pushed a track through the length of the Salton Basin connecting Salton Basin with the east, during the 1870's, the area began to grow. California businessmen became interested in furnishing water to this fertile area, which was by then becoming known as a potential Nile Valley.

In 1892, Charles R. Rockwood, an engineer and promoter, rediscovered the Imperial Valley. The idea of its reclamation became an obsession with him. Realizing his own lack of experiences in financing and promoting, he



Wire Ferry Across Colorado River.

Courtesy Title Insurance and Trust Co.

associated himself with first one and then another, always seeking to bring into realization his plans for reclamation. His quest was strangely parallel to that of Dr. Wozencraft.

Rockwood followed every clue that looked like it led to money; he crossed the continent time and again, visited Europe, saw the bag of gold at the foot of the rainbow several times only to have it disappear by the breaking out of the Spanish American war, the death of a principal or treachery of friends. He was deserted by friends and backers, laughed at as a dreamer by unyielding bankers in the east and west.

Anthony H. Heber became interested with Rockwood when the California Development Company was organized in 1896. He and Rockwood worked together strenuously for four years attempting to finance the irrigation scheme. George Chaffey, who had known Dr. Wozencraft, became interested in the company and took over the affairs in 1900.

Lack of funds kept the company from completing its main canal until 1902. Because the main canals had to run through Mexico for several miles, the company had to form a Mexican company and obtain concessions from the Mexican government.

With all the difficulties of the promoters, and the magnitude of the undertaking, it is a miracle that the desert was ever tamed by settlers of that period.

The first three families arriving in Imperial Valley, who helped to begin the digging of the first canal were W. A. Van Horn, his wife and six children; W. F. Gilett, wife and seven children and L. M. Van Horn with four motherless children.

These families had been pioneering in the Salt River Valley in Arizona when they heard of the new development about to start on the Colorado

deserts. Deciding that the area offered more promise, they loaded their household goods, what implements they could carry, including two Fresno scrapers, and several crates of chickens into three wagons. Driving five cows and a bull, they set out on their long journey.

This was in the fall of 1900. The little caravan moved its tedious way down the banks of the Gila River, arriving in Yuma in December. They drove to the banks of the muddy Colorado and wondered how they were to get across. They met two other men and the five of them decided to build a raft, and within a week they made a crude craft that would hold a small load and could be poled across the river to carry their families, teams, wagons and household goods.

Not trusting the raft, Mrs. Gilett rowed a boat and took all the small children and Mrs. Horn across. On one of these trips, Ray Van Horn, a lad of ten, riding his pony, plunged his pony from the raft into the water, tied the end of his lariat to timbers on the rafts and pulled the raft free from a sandbar where it had stuck in the middle of the river.

Safety over the river, the three venturesome families found themselves in Mexico, facing the Mexican custom officials; lists and manifests had been carefully prepared and the officials checked them thoroughly. Everything was all right — but wait!

"Where are the chickens?" asked the officers; but no chickens were on the list. The settlers were compelled to send the chickens back to Yuma, ship them by rail to Flowing Well, and one of the men made a sixty mile trip with a team to get the chickens back to their camp.

The three families went to work for the California Development Company immediately. Gilett hitched his team to a plow and broke the first furrow. Van Horn's two scrapers were the first of thousands of the Fresno scrapers that were soon turning dirt, building canals and leveling land in the valley.

Mrs. Van Horn and Mrs. Gilett took care of seventeen children, managed the commissary and cooked for thirty-two men for almost a year. House-keeping was primitive in these days and the principal household utensil was a good, sturdy can opener.

There was no railroad at that time, and freight and express was hauled by wagon from Old Beach located on the main line, which is now the town of Niland. Because of this, nothing perishable could be brought in so the settlers were without milk, butter, eggs, fresh fruit, vegetables or meat.

The hardships these people endured and the primitive conditions of those times are hard for us to conceive today. The following description of one of the valley towns by Tout, is enlightening:

"The town of Imperial, when we came here, consisted of two large tents used for a hotel, one was the kitchen and dining room, the other divided into sleeping rooms; and a light frame building that housed the first newspaper and publisher's family. The first little Christian church was a frame building and was later destroyed by fire.

"The other frame building was a general merchandise store, with a lean-to at the side which was our first bank presided over by Mr. Leroy Holt. There was a shed used as a blacksmith shop and perhaps a dozen tent houses."

F. C. Farr writes of this same period: "The only women in Imperial and for miles around were the wife of the editor of the paper, Mrs. Frost and Mrs. Holt. There was then no wire communication with the outside world, and the mail was often behind time. The people occasionally became hungry and found difficulty in keeping warm, the stovepipe would blow away. When this happened a neighbor would chase the stovepipe on the Holt pony, fearing it might land in the canal and be lost forever.

"Mrs. Holt recalls one Sunday when they had no meal all day, the dust being so thick they could not eat in the tent-house. The children were kept in bed in case the tent was blown over."

But gradually, the picture began to change, 700 miles of canals were completed, placing nearly 77,000 acres of land under cultivation in the Imperial Valley, settlers began to pour into the area.

With artesian wells furnishing water in the Coachella Valley, towns began to flourish. Indio, Coachella and Mecca were important farm centers.

The land was sold to eager farmers at auction sales held in tents at the sites of the new farmlands. By 1904, more than 12,000 persons had moved to the desert and the towns of Brawley, Holtville, Heber, and Calexico. With the railroad connecting these towns with the major markets, the area boomed.

The promoters of the canals were widely praised for their foresight and planning. It did not seem to have been realized, at the time, there there was any real danger to the Imperial Valley by flood waters from the Colorado. It was known that large quantities of water had been carried through the New and Alamo Rivers into the Salton Sink in 1891, and also by the New River earlier, especially in 1862, but the channels had not eroded to any marked degree at the gathering ground along the Colorado River bank, but had automatically closed. There is no doubt that the promoters had no idea of the risk of floods when they began building the canals.

During these prosperous times, it appeared that the project would grow, but all was not well. Tons of silt were being carried by the river, gradually blocking the main canal. Tests showed that the Colorado carried 10 tons of silt with every acre foot of water. Then in 1904, the canal was blocked and the Imperial Valley was without water.

The mood of the valley changed, and the farmers threatened the promoters with mass retaliation if they did not correct the situation at once. The situation was urgent and something had to be done at once, to save threatened crops, as well as their profitable holdings.



Water conditions were alarming for the settlers. They worked frantically trying to dredge out the canals and keep ahead of the tons of silt, that the Colorado kept building up. With insufficient equipment, a lack of capital and time to clean the silt from the canals, the ranchers faced ruin. But even with their limited equipment, they still kept fighting.

During this period the California Development Company encountered many difficulties and setbacks. Settlers were plagued with problems over an error in government land surveys, and could not obtain proper financing to improve their properties. The Department of Agriculture published an unfavorable report on the alkalinity of the soil, discouraging sensible people from settling in the area. This warning was repeated again and if the territory had not already been settled in a very large part, it seems certain that the land reclamation would have been deterred for many years. One such statement from a government bulletin read:

"One hundred and twenty-five thousand acres of land have already been taken up by prospective settlers, many of whom talk of planting crops which it will be absolutely useless to attempt their growth . . . No doubt the best thing to do is raise crops such as sugar beet, sorghum, and date palm (if the climate would permit), that are suited to such alkaline conditions, and abandon as worthless the land which contains too much alkali to grow these crops."

When the United States Reclamation Service Act was passed in June, 1902, the crops produced in the Imperial Valley were causing a rapid return of confidence in the region, and more development and settlers came. Water users formed an association to buy the California Development Company, and during these negotiations, the right of the company to use the Colorado River water was challenged. All of these factors weakened the company's financial position.

One of the worst blows to the company was a report made by Director C. D. Wolcott, Director of the U.S. Reclamation Service, to the Secretary of the Interior. In H. T. Colby's book on the Imperial Valley and the Salton Sink, he notes that the director advised that, even if there were not complications because of the unfavorable soil report by the Department of Agriculture that:

"With the present situation of many of the inhabitants of the Imperial Valley, it is a matter of grave doubt whether it was wise to become involved in the situation.

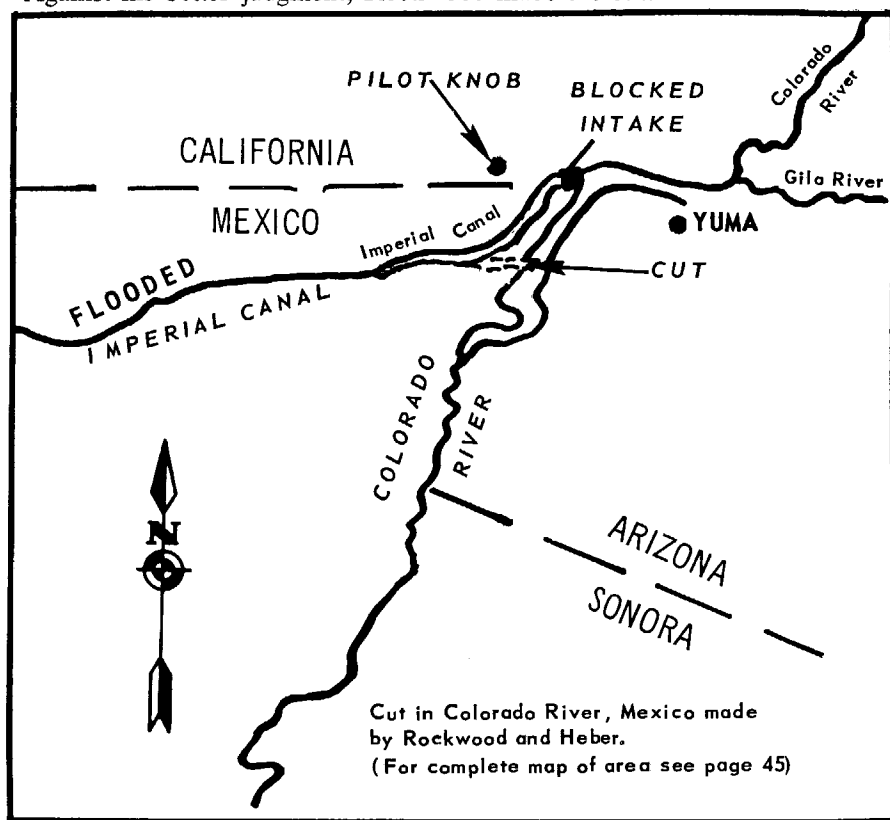
"Much of the land filed on is unsuitable for cultivation owing to the large amount of alkali and other adverse conditions of the soil. The water supply is deficient, owing to poor construction and accidents to the canal system, and although the fall months there has been ample water, it appears that the people will not utilize it, and from the best information are not planting

crops to any considerable extent. Difficulties of handling the silt are very great, and if the Government is to take up the project, it must make enormous expenditures at once to prevent the country from lapsing into a desert condition."

Because he could not obtain an adjustment of water rights through Congress, Heber had gone to Mexico and obtained a concession from President Diaz, which was ratified by the Mexican Congress on June 7, 1904.

Since Heber could not obtain any help from the United States Government, he conceived the idea of making a cut in the Colorado River over to the canal, where it ran through Mexican territory. After all the hassling with the government over Colorado River water, and the right to use it, Heber felt he had pulled a brilliant coup. The spectacle of American farmers getting help from a foreign government with their water, Heber thought would spur them to action. At any rate, the Company would not be dependent on the whims of Washington.

But when Rockwood, the company engineer heard of the plan, he was reluctant to make the cut. Knowing the wily Colorado, he felt it was a dangerous plan from an engineering standpoint, and he felt that the hazards were too great. However, the temper of the people of the Imperial Valley was growing ugly, and fighting over water was becoming commonplace. Against his better judgment, Rockwood made the cut.



Although Heber felt this was a victory, it proved not to be. The blow which ruined the credit of the California Development Company at that time with Southern California banks and larger financial institutions throughout the country was the announcement by the Secretary of the Interior in 1905, that the Assistant Attorney General had concluded that no law existed whereby it could deal with the problem of carrying water through Mexico.

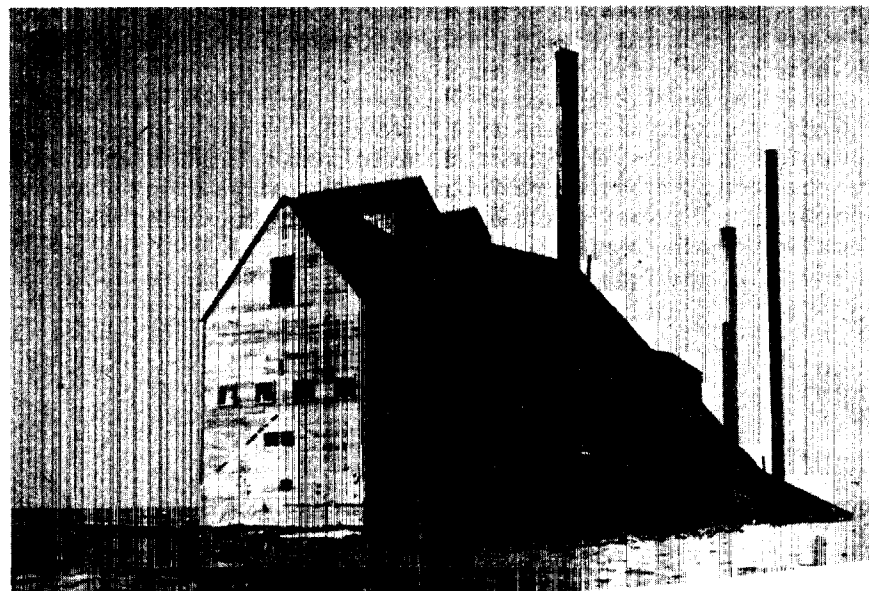
Such were the conditions in the spring of 1905 when the Colorado went on a rampage, and smashed into the channel, overflowing its banks. Unchecked, the flood waters rushed northward to the Salton basin. Because the Salton Basin was below sea level, and the river higher ground, the settlers realized their danger. They fought frantically to divert the river back to its old course.

The raging New River poured into the valley, a huge waterfall formed where it poured from the cutback into the Basin. The swirling torrents of water had enlarged the channel intake to a width of 1,200 feet, and the water rushed into the Salton Sea.

Rockwood and the company fought frantically to save the Valley and stop the breaks. The river was dynamited to stop the flow of the New River. The water had been turned down the New River to prevent the flooding of Calexico and Mexicali.

The New Liverpool Salt Company filed suit in Riverside County against the California Development Company for \$87,000 damages because its salt fields and plant had been inundated by waste water coming through the three intakes, two of which were without gates.

After the first attempt at closure failed, a dredge was moved upstream where a second dam was begun. The current was too swift, however, and this plan was shortly abandoned.



The Old Salt Works Which Were Inundated in 1906.

Illustrating the never-say-die spirit of that little band of engineers combatting the unprecedented savagery of the river they plunged into the main west channel of the river itself and prepared to throw a dam across this channel from the upper end of Disaster Island, that lay in mid-stream, to the west bank of the river. An army of workmen filled 30,000 sacks with sand, a pile driver rigged on the edge of the dredge hammered the piling into the muddy river bottom. It was June flood time, however, and these heroic efforts were fruitless.

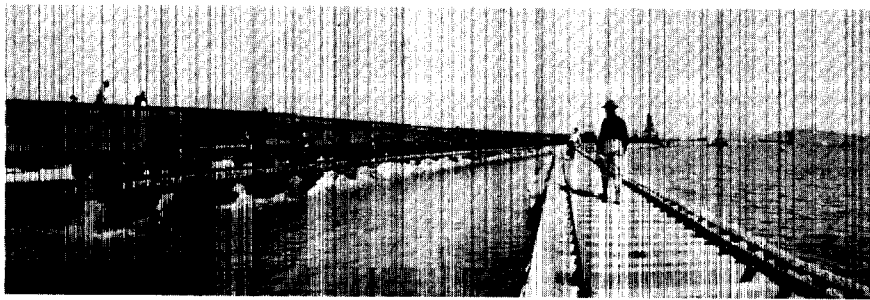
The fact they had succeeded in throwing a barrier across a channel carrying 2,500 second feet of water was deemed "a most remarkable achievement" by H. T. Cory, in his book on Imperial Valley and the Salton Sink. The only equipment they had at hand was the make-shift pile driver and Fresno scraper teams.

June 17, 1905, Rockwood gave orders to abandon the work, as he realized that nothing could be done until after the summer flood. At this time, the river was carrying a flow of 80,700 second feet, and nearly 9,000 second feet were flowing into the Salton Sea. The water was then within 100 feet of the S. P. tracks along the Salton Sea. By the end of June the flow to the Salton Sea had increased to 14,000 second feet and the mouth of the intake had widened from 60 feet to 184 feet. The stream entering this intake was fifteen feet deep and moved at the rate of four miles an hour.

During the spring and summer of 1905, the 10,000 settlers in the Valley watched the filling of the old chain of lakes on the west side with interest and apprehension. The lakes not only filled to the brim but the water backed up and spread out east and west. The flow of the Alamo on the east side carried away the bridges and the Rositas dam. Bridges at Calexico, Silsbee and Brawley went out.

Some ranchers saved their lands by building levees, but many ranchers left the Valley. A cable was strung across the New River with an undertaker's basket attached. It was operated with a mule, carrying people, barley and animals across the flood waters.

During this period, the Southern Pacific had loaned the California Development Company an initial sum of \$200,000 to attempt to stop the raging torrents of the river. Rockwood and his company of engineers tried several plans to stop the raging river, but met with no success. Five attempts were made, and finally it was realized that the job was too big for the California Development Company engineers.



Southern Pacific Workers Dumping Rock into Colorado River Break.
Courtesy Southern Pacific Company



EH. Harriman, president of the Southern Pacific, sent one of his best engineers Harry T. Cory, to attempt to mend the disastrous breaks. Cory, facing what seemed an insurmountable task, had to construct spur lines, recruit labor and set up an organization to deal with the problem, as well as ascertain the best method of stopping the break.

Many engineers were pessimistic about Cory's chances of stopping the Colorado, some felt that it would be better to let the sea take over the valley. But Cory had his plans well-made and he took on one of the biggest engineering jobs of the century.

One of Cory's biggest problems was the acute labor shortage on the west coast. The San Francisco area, the same year and rehabilitation work had drawn labor from the area and the rapid growth of Los Angeles had absorbed much labor. The immigration laws prevented the importation of Mexicans, except in a very small way, although the work that had to be done in Mexico could be done by them.

Because of the heat during the summer months, mosquitoes, brush and arrow weed growths were so dense that white men, no matter how well acclimated could not work very hard in cutting them down. Indian labor seemed to be the only answer.

Cory made arrangements with the Indian agent in the area, and as a result that by the time the work was in full swing, practically all the men, women and children in six Indian tribes were on the work — the Pimas, Papagoes, Maricopa, and Yumas from Arizona; and the Cocopahs and Dieguenos, from Mexico. These six tribes fraternized and got along well, in their camp of about two thousand people.

Yuma was a wide-open town at the time and many white floaters drifted in and out, contributing in some measure to solving the labor problem.

The boiling flood waters had cut a gorge more than forty feet deep and nearly a half mile wide. In contrast, the discharge of the river and fallen and directly beside the Rockwood Headgate; the receding waters had exposed sandbars on each side of the main channel. When these sandbars had dried sufficiently, teams were used in throwing up an embankment on the line of the diversion dam.

The Indian labor began working on brush jetties to narrow the channel. In a little more than a week, the stream was narrowed to 700 feet, the river gradually falling. Work was then begun on weaving a huge brush mattress, 100 feet wide, and sinking it on the bottom of the river.

A powerful pile driver sank 90 foot long poles in the river break, and as the Indians worked at their frantic task of weaving the huge mattresses of arrow weed, over and under the three-quarter inch cables stretched across the barge, Silas J. Lewis. When a length of mattress equal to the width of the

barge was completed, the barge was slowly pulled from under it. The mattress would sink heavily to the bottom, without any weighting being required.

The Indians worked diligently and in 20 working days, with two shifts had completed two mattresses, one on top of the other, across the bed of the stream.

While they were working on the mattresses, a railroad trestle was started across the center line of this foundation, decked and a railroad track laid down. This trestle was driven from both ends, and when completed the trains carried huge side-dump railroad cars, each loaded with rock from nearby quarries.

As Cory, his engineers, and Indians toiled to complete the underpinnings of the gate strengthened before the winter floods began, a flash flood came roaring down the river. Cory, with the steamer searchlight and other boats worked fought the mass of debris brought down the raging river. The new trestle was swept away, and Cory barely escaped when the gate was washed out. An engineer on the main trestle who was marooned got his locomotive across before the trestle collapsed. The rock cars behind him dropped into the flood water, so close was his escape.

Once more, the Colorado had defeated those who sought to master it. Most of Cory's rock dam still stood but the river had cut around both ends of it. Other engineers who had predicted the failure of the project had a field day and expressed again their convictions that it was a losing battle for Cory.

But Cory thought he saw an answer to the problem, when he saw that the rocks had held. He thought if he could dump huge quantities of rocks before the floods came, he still might be able to stop the river.

Since all the quarries had been stripped of their rock, Cory realized that he would need every available flatcar and battleship on the Southern Pacific.



Indians Weaving the Brush Mattresses.



Cutback in the New River Near Calexico. Drop, 28 feet. June, 1906.

He told Harriman that he could stop the river if the S.P. would supply the rock. Harriman gave Cory the go ahead, as he had great confidence in the young engineer.

The dams across the break and the by-pass were hurried to completion with carloads of gravel, clay and rock. This area was known as the Hind Dam, and Cory worked against time to complete it before the winter rains. About 80 per cent of this dam was completed by December 7, 1906. Cory felt he had won, for on both sides of the closed break, he had built giant sand levees. The large crews were laid off, and Cory took a well-earned rest.

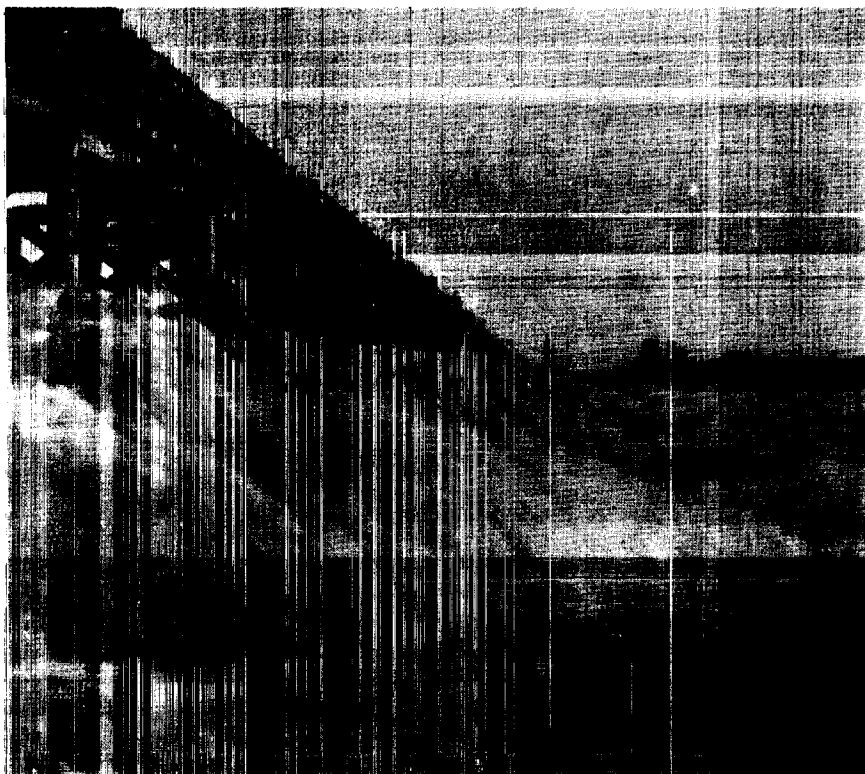
But this was not to be, for on December 11, he received a telegram: BREAKS IN LEVEE. COME AT ONCE.

On December 5, 1906, a severe flood came down from the Gila. Cory and Hind were in Yuma, returning to the Valley, but when they reached the scene, the first of the three breaks were beyond control, and the situation was hopeless. Within 24 hours, the old channel was again entirely dry and the river had been rediverted to the Salton Sea.

The men of the grading outfit engaged in levee extension work three miles down the river were flooded out, and the steamer Searchlight was sent to relieve them. The re-diversion into the Salton Sink occurred so rapidly that the steamer was left grounded there in the old channel.

According to Cory, this disaster brought the realization to the Southern Pacific that the task of controlling the Colorado, was of such magnitude that it was not in the best interests of the company to continue.

It was recognized that something would have to be done very quickly because it was felt that summer flood conditions in 1907 would cause such grade recessions that would flood the entire Imperial Valley. The matter was complicated by the fact that most of the work had to be done in Mexico and practically all of the property interests in jeopardy were in the United States. There were no laws, state or federal to handle this curious situation.



The Hind Dam, Passing 7,000 Second-feet.

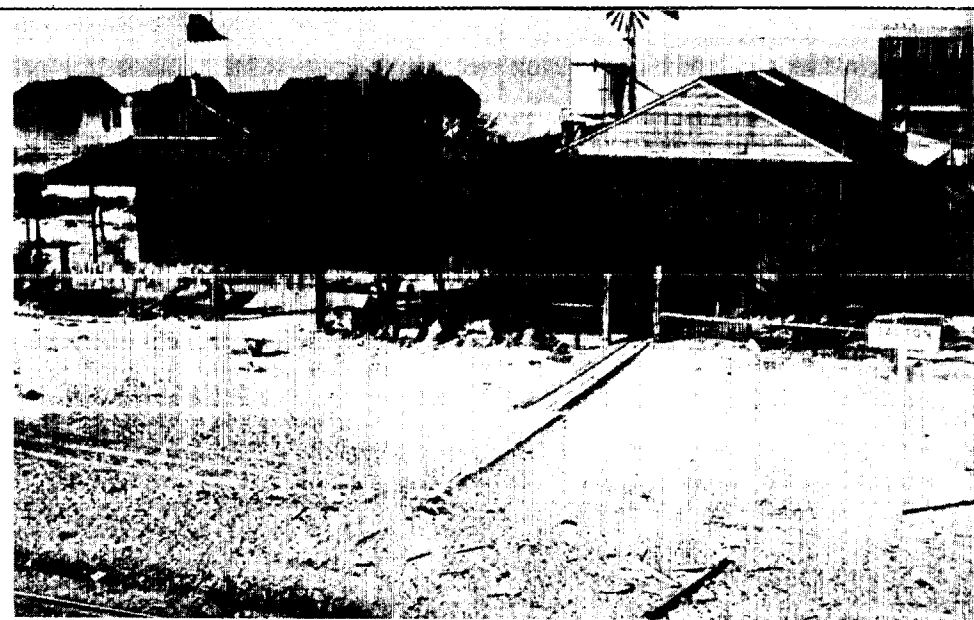
In assessing the situation, the Southern Pacific realized that unless the river was stopped, that they would lose the traffic into the Imperial Valley, and would have to change its line and build 100 miles of track, but to obviate these losses would not justify their bearing cost of controlling the river single-handed.

The company started work on a roadbed and moved the tracks to higher ground so the flow of transcontinental traffic would continue for at least four or five years, and planned to build a line lying entirely above sea level at a later date.

At the same time, Southern Pacific notified the people of Imperial Valley that they would be glad to assist with their equipment and organization but they would no longer bear the cost of the work, without some definite arrangement for reimbursement.

The people of Imperial Valley held a mass meeting in Imperial on December 13, 1906 and almost a million dollars was pledged by various interests. Arrangements were made to make payment 90 days after the break had been closed successfully, with the railroad assuming all risk of the work.

But an opposition developed, and it was pointed out that the mutual water companies might not be able to legally issue bonds or expend money for river protection work at all, or that the people in the valley could not raise money, except by individual subscription, for work done in Mexico.



The Town of Salton Shown Here Had to Move After Flooding of Salton Sink.

The only thing left for the Southern Pacific to do was to appeal to the federal government for aid, since the California Development Company at that time was financially unable to assume any obligation.

A series of telegrams from the President's papers give the circumstances of what was to later become a bitter controversy and the basis for a lawsuit by the Southern Pacific for reimbursement of this work. Pointing out all the work the Southern Pacific had already done, in a lengthy telegram to the president, Harriman stressed the loss to the government if the river were not stopped:

"If the overflow is not entirely checked, the Imperial Valley will be flooded, depriving several thousand settlers of homes and flooding a large area of irrigable land that will be speedily settled, the actual loss to farms and towns being estimated at \$3,000,000, while the Government dam at Laguna, on which \$2,000,00 has been expended, will be destroyed, and some 50,000 acres of irrigable land tributary to Yuma and 350,000 additional acres that might be irrigated if the river is allowed to cut a canyon back through them, as it will inevitably do unless it is controlled, and the town of Yuma will also suffer severely.

In view of the above it does not seem fair that we should be called upon to do more than join in to help the settlers." Harriman sent this telegram on December 13, 1906.

He received the following reply two days later:

WASHINGTON, December 15, 1906

Mr. E. H. HARRIMAN

120 Broadway, New York:

Referring to your telegrams of December 13, I assume you are planning to continue work immediately on closing break in Colorado River. I should be fully informed as to how far you intend to proceed in the matter.

THEODORE ROOSEVELT

The following series of telegrams were exchanged:

NEW YORK, *December 19, 1906*

The PRESIDENT, *Washington:*

Further referring to your telegram of the 15th instant, our engineers advise that closing the break and restoring the levee can be most quickly and cheaply done, if the work is undertaken immediately, as a cost of \$300,000 to \$350,000. The Southern Pacific Company having been at an expense of about \$2,000,000 already, it does not feel warranted in assuming this responsibility and the additional expenditure which is likely to follow to make the work permanent besides the expenditure which the company is already undergoing to put its tracks above danger line. We are willing to cooperate with the Government, contributing train service, use of tracks and switches, use of rock quarries, train crews, etc., and the California Development Company will contribute its engineers and organization, the whole work to be done under the Reclamation Service. Can you bring this about?

E. H. HARRIMAN

Mr. E. H. HARRIMAN

120 Broadway, New York:

Replying to yours of 19th. Reclamation Service can not enter upon work without authority of Congress and suitable convention with Mexico. Congress adjourns today for holidays. Impossible to secure action at present. It is incumbent upon you to close break again. Question of future permanent maintenance can then be taken up. Reclamation engineers available for consultation. That is all the aid that there is in the power of the Government to render, and it seems to me clear that it is the imperative duty of the California Development Company to close this break at once.

The dangers ultimately due only to the action of that company in the past in making heading completed in October, 1904, in Mexican territory. The present crisis can at this moment only be met by the action of the company which is ultimately responsible for it and that action should be taken without an hour's delay. Through the Department of State I am endeavoring to secure such action by the Mexican Government as will enable Congress in its turn to act. But at present Congress can do nothing without such action by the Mexican Government.

This is a matter of such vital importance that I wish to repeat that there is not the slightest excuse for the California Development Company waiting an hour for the action of the Government. It is its duty to meet the present danger immediately; and then this Government will take up with it, as it has already taken up with Mexico, the question of providing permanent shape against the recurrence of this danger.

THEODORE ROOSEVELT

WASHINGTON, *December 20, 1906*



The PRESIDENT, *Washington, D.C.:*

Replying to your telegram of this date, you seem to be under the impression that the California Development Company is a Southern Pacific enterprise. This is erroneous. It had nothing to do with its work or the opening of the canal. We are not interested in its stock, and in no way control it. We have loaned it some money to assist in dealing with the situation. What the Southern Pacific Company has done was for the protection of the settlers as well as of its tracks, but we have determined to move the tracks onto high ground anyway. However, in view of your message, I am giving authority for the Southern Pacific officers in the West to proceed at once with efforts to repair the break, trusting that the Government, as soon as you can procure the necessary Congressional action, will assist us with the burden.

E. H. HARRIMAN

WASHINGTON, *December 20, 1906:*

Mr. E. H. HARRIMAN

120 Broadway, New York:

Am delighted to receive your telegram. Have at once directed the Reclamation Service to get into touch with you, so that as soon as Congress re-assembles, I can recommend legislation which will provide against a repetition of the disaster and make provision for the equitable distribution of the burden.

THEODORE ROOSEVELT

This was the go-ahead that Harriman had been waiting for, he instructed Cory with the tremendous job of harnessing the river, and promised to supply all the materials and equipment needed for the huge undertaking.

In the meantime, the government contacted the California Development Company to ascertain if they could be made financially responsible for the project. The following telegrams reveal the position of the company at this time:

DECEMBER 31, 1906

PRESIDENT CALIFORNIA DEVELOPMENT COMPANY

Delta Building, Los Angeles, Cal.:

Telegraphic requests have come from E. H. Harriman and people in southern California asking for aid in maintaining levees on Colorado River. No request from California Development Company nor indication that it is unable to control the situation permanently itself or whether it desires aid from the Government. Harriman disclaims responsibility for California Development Company. Assertion has been made that company is bankrupt and can not handle situation. President Roosevelt desires me get in touch with the situation. Wire whether California Development Company is able to build and maintain protection works and deliver water to settlers. If not able to do so, whether Government aid is desired and on what terms. Will control of protection works after completion and irrigation system be turned over to Government?

WALCOTT, *Director*

TUCSON, ARIZ., *January 3, 1907*

CHAS. D. WALCOTT,

Director U.S. Geological Survey, Washington, D.C.:

Your message of December 31 received this morning. The California

Development Company joins the people of southern California in asking the Government to take over the work of permanently controlling the Colorado River, or that it appropriate money for the same. The California Development Company has outstanding liabilities to the extent of something over \$2,000,000, and it has assets which will have a value largely in excess of its liabilities, provided the Colorado River is permanently controlled. California Development Company has no money with which to prosecute the work except such as Southern Pacific is lending it to meet its current pay rolls and other expenses connected with again closing the break in the river and patching the levees. If the Government will take over the work of controlling the river, California Development Company will be able to supply water to citizens of Imperial Valley and liquidate its indebtedness, or if it is the desire that the Government take over the entire project, assuming the liabilities, the matter could doubtless be accomplished in that way.

EPES RANDOLPH.

President California Development Company.

TUCSON, ARIZ., January 4, 1907

CHAS. D. WALCOTT,

Director U.S. Geological Survey, Washington, D.C.:

Re to your letter of December 28 I reply to question No. 1 as follows: The California Development Company has not the funds necessary to construct and maintain a levee system such as would be required to permanently control the Colorado River, but if the California Development Company could be relieved of the work of controlling the Colorado River it could supply the settlers of Imperial Valley with an abundance of water, and could in the end pay its own debts. Answering question No. 2, will say arrangements can be made whereby California Development Company and the Mexican corporation, which it controls, can be turned over to the Government with the Colorado River under permanent control. The California Development Company and its Mexican company would have assets largely in excess of their liabilities.

EPES RANDOLPH.

Once more, Cory began his bitter battle against the Colorado. He was faced with even more problems this time. The Indians had returned to the reservations and did not want to return. He offered exceptionally high wages, and finally got together a crew of 1,500 men.

Few people who saw the erosion at the south end where Hind Dam had been, believed that the erosion could ever be stopped. But Cory managed to stop the erosion with an immense quantity of rubble.

It was decided to build two trestles, using five pile-drivers, one at each end of the trestle and a floating machine in the middle of the stream. It was a dangerous undertaking, with a very strong current, and in driving the 90 foot piles, there was constant danger of overturning the driver and losing the machinery, therefore two complete pile-driving outfits were kept in reserve and two boats waited below the trestle to pick up any men who might be thrown overboard.

A flood on December 28 tore away about one-third of the trestle, but the high waters let the stranded steamer Searchlight get back up the river to work. The floods tore out the trestles three times, but Cory still fought on.

In the middle of the struggle he received a telegram:

"H. T. C. —

We have exhausted all available supply of piles in San Diego and Southern California. There is very little hope of getting any in Northern California. If you feel you will need any more please let me know at once as we must make arrangements with the Atlantic System. (Signed) R. H. Ingram."

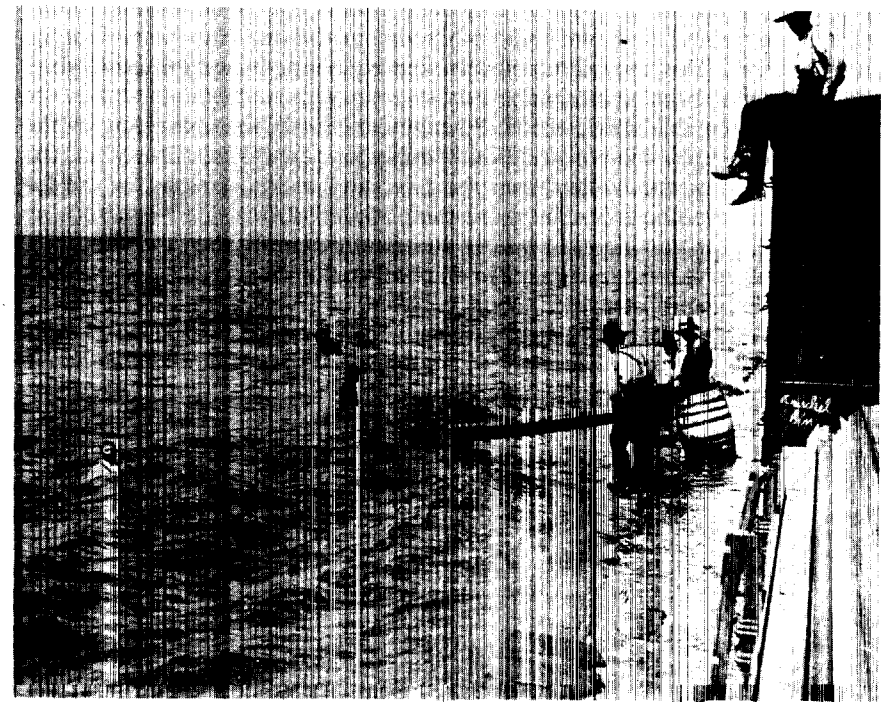
All the quarries from the Imperial Valley to New Orleans were supplying rock, clay and gravel. Local supplies had been exhausted.

As Cory and his men fought on days and nights under the glare of huge searchlights, the work went on. Finally, the the fourth break, the trestle was completed and held. Cory hoped to dump the rock into the break before the river would again sweep away the pilings like toothpicks.

As he and his men had worked frantically on the trestles, the flat cars and huge side-dumping cars known as "battleships" were rolling in from as far away as New Orleans loaded with material.

The Southern Pacific gave the job a Number One priority, and all available rolling stock was assigned to the task of saving the Imperial Valley. On January 27, when the first trestle was finally completed, the monumental job of dumping the rock, gravel and clay from the lines of side-tracked railroad cars began.

Cory, in later years, said: "For three weeks two divisions of the S.P., embracing about 200 miles of main line, was practically tied up because



Railroad Workers Fighting to Stop the Turbulent Colorado.
Courtesy Southern Pacific Company

of the demand for equipment and facilities. We had 1,000 flat cars exclusively for our service and shipping from San Pedro was practically abandoned for two weeks until we returned a considerable portion of the equipment. It was a case of putting rock into the break faster than the river could take it away. In 15 days after we got the trestle across and dumped the first carload of rock we had the river stopped. In that time we handled rock faster than it was ever handled before. We hauled it from Patagonia, Arizona, 480 miles away, over two mountain passes, from Toana, 60 miles to the east; from three or four quarries near Colton, 200 miles to the west and over the San Gorgonio Pass. We brought in 300 flat cars loaded with rock from these immense distances, and we put in altogether about 80,000 cubic yards of rock in 15 days."

It had been discovered by Cory that the brush mattress bottom protection was unnecessary, provided rock was thrown in at a reasonably rapid rate. He found that a relatively small quantity of "battleship" rock blanketed the bottom of the stream with a mattress of rock which fulfilled the same function as a mattress of brush.

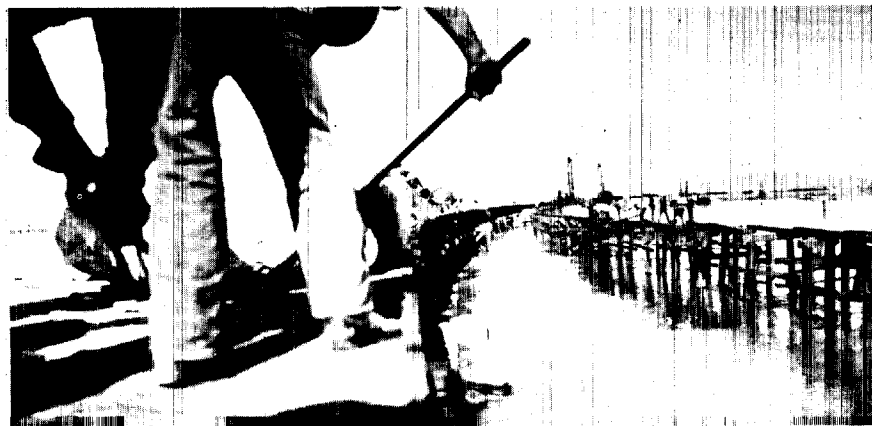
Large stones, which could be loaded on flatcars only with derricks were used. Such large rocks were unloaded by a great number of men using pinch bars, and to prevent upsetting, the cars were chained to the stringers when unloading especially heavy rocks. One man was killed during each closing by going overboard with a large rock, but no equipment was lost.

This unloading went on night and day for fifteen days, and during this period two thousand fifty-seven carloads of rock, two hundred twenty-one carloads of gravel, and two hundred three carloads of clay were dumped into the river. This record has never been equalled. It had taken 52 days to turn the river back to its channel.

After closing the break the S. P. engineers made the exclusion of the river permanent by the construction of miles of new dikes. Altogether, the job of redeeming the Valley from the river and making it safe for the future, cost the Southern Pacific more than \$5,000,000.

The battle for the Imperial Valley was finally won. Today, the shimmering Salton Sea, a turquoise jewel in the buff-toned desert, remains as a reminder of the mighty struggle.

Southern Pacific Workers Fighting to Save the Imperial Valley.
Courtesy Southern Pacific Company



During the period that Cory was struggling with the river, government officials in Washington were considering the situation. Senator Frank C. Flint, of California, introduced a bill in the Senate providing for \$2,000,000 to handle the situation. Tied in with the bill, which would have provided payment to the Southern Pacific Company, and the remainder to be used to establish irrigation projects for the Imperial Valley by the U.S. Reclamation Service.

On January 21, 1907, President Roosevelt sent a special message to Congress severely criticizing the promoters of the California Development Company, and urging passage of the Flint bill to relieve the settlers from what he saw as the injustice they were enduring. The President's viewpoint of the whole affair is an interesting one and presents another side of the picture.

To the Senate and House of Representatives:

The governor of the State of California and individuals and communities in southern California have made urgent appeals to me to take steps to save the lands and settlements in the sink or depression known as the Imperial Valley or Salton Sink region from threatened destruction by the overflow of the Colorado River. The situation appears so serious and urgent that I now refer the matter to the Congress for its consideration, together with my recommendations upon the subject.

Briefly stated, the conditions are these: The Imperial Valley, so-called, in San Diego County, Cal., includes a large tract of country below sea level. Southeast of the valley and considerably above its level is the Colorado River, which flows on a broad, slightly elevated plane upon which the river pursues a tortuous course, finally entering the Gulf of California. The lands in Imperial Valley are 200 feet or more below the level of the Colorado River. Down as far as the international border they are protected from inundation by low-lying hills. South of the boundary in the Republic of Mexico, the hills cease abruptly, and only the broad low mud banks of the river protect the valley from being converted into an inland sea or lake. In order to get any water to this vast tract of fertile but desert land, or, on the other hand, to protect it from too much water works of supply or of protection must be built in Mexico even though they may tap the river in the United

States. The United States can neither aid nor protect the interests of citizens without going upon foreign soil.

Nature has through many centuries protected this great depression from overflow, but the restless river, constantly shifting, has annually threatened to break through the banks. Only a little human aid was needed to cause it to do so.

This condition has been long known, and through many years schemes have been discussed either to convert the Salton Sink area into a lake or to irrigate the desert lands below sea level by making a cut in Mexico through the west bank of the Colorado River. It was also well understood that if the cut in the bank was not carefully guarded the river would quickly get beyond control. Finally, after many plans had been tentatively tried, the California Development Company, a New Jersey corporation, actively undertook the work. To insure the safety of Imperial Valley the head of the canal on the river was first placed on United States territory near where the river was bounded by hills. The canal then swung southwest and west away from the river through Mexican territory to connect with natural depressions leading to the valley and back into the United States. The organizers of this company, in order to carry on the work in Mexico, caused to be created a subsidiary company in Mexico acting under Mexican laws. Concessions were granted to this company by the Mexican Government, and provision was made for the employment of a Mexican engineer, to be designated by that Government, in order to see that the work was properly carried out. The dangerous character of the attempt was thus recognized in this concession.

THE PRESIDENT ACCUSES THE CD COMPANY OF BAD FAITH

The California Development Company began its work by making representations to possible settlers of the great benefits to be derived by them by taking up this land. A large amount of money which might have been used in needed works was expended in advertising and in propounding the enterprise. The claims were not only extravagant, but in many cases it appears that willful misrepresentation was made. Many of the operations of this company and of its subsidiary organizations tended to mislead uninformed settlers. At first the success of the company was great, and it disposed of water rights to settlers at prices sufficiently large to obtain a fair revenue either in cash or in securities of value.

The money thus obtained from settlers was not used in permanent development, but apparently disappeared either in profits to the principal promoters or in the numerous subsidiary companies, which to a certain extent fed upon the parent company, or served to obscure its operations, such as a construction company, a company to promote settlement, and a company to handle the securities of the various other companies. The history of these deals is so complicated that it would require careful research, extending through many months, to unravel the devious ways by which money and valuable securities have disappeared. In brief, it is sufficient to state that the valuable considerations which were received for water rights were obviously not used in providing necessary and permanent works for furnishing water to the settlers.

The whole enterprise and the spirit of those promoting it, as well as of the numerous smaller speculators attracted to the subsidiary organizations, were of the most visionary character. Actual investments made have been small in proportion to estimates of wealth which appeared to be possible of realization.

The company entered upon its construction work with large plans, but with inadequate capital. All of its structures for the control and distribution of water were temporary in character, being built of wood, and of the smallest possible dimensions. Through the efforts thus made a large amount of land was brought under cultivation, and at one time it was reported that over 100,000 acres were being more or less cultivated.

The first heading of the canal of the California Development Company was in the United States, immediately north of the Mexican border. It was found, however, after a time, that the heading on the United States side of the line did not give a grade to furnish sufficient flow of water, and, after headings had been opened at other points without successful results, a cut in the river bank was made 4 miles farther south in Mexican territory. This gave the water a shorter and steeper course toward the valley. The making of this cut in a bank composed of light alluvial soil above a depression such as this without controlling devices was criminal negligence. This short cut on Mexican soil was made in the fall of 1904. It was gradually eroded by the passage of the water, and in the spring of 1905 the floods of the Colorado River entering the artificial cut rapidly widened and deepened it until the entire flow of the river was turned westerly down the relatively steep slope into the Imperial Valley, and thence into what is known as Salton Sink or Salton Sea.

THE PRESIDENT NOTES THE ASSISTANCE OF S.P.

After the mischief became apparent, strenuous efforts were made by the California Development Company to close the break, but these were without success. Finally the Southern Pacific Company, finding its tracks imperiled and traffic seriously interfered with, advanced money to the California Development Company, received as security a majority of the shares of the company, and thus took charge of the situation.

By means of the facilities available to the Southern Pacific Company the break in the west bank of the Colorado River was closed on November 4, 1906. A month later, however, a sudden rise in the river undermined the poorly constructed levees immediately south of the former break and the water again resumed its course into the Salton Sea.

The results have been highly alarming, as it appears that if the water is not checked it will cut a very deep channel which, progressing upstream in a series of cataracts, will result in conditions such that the water can not be diverted by gravity into the canals already built in the Imperial Valley. If the break is not closed before the coming spring flood of 1907, it appears highly probable that all of the property values created in this valley will be wiped out, including farms and towns, as well as the revenues derived by the Southern Pacific Company. Ultimately the channel will be deepened in the main stream itself up to and beyond the town of Yuma, destroying

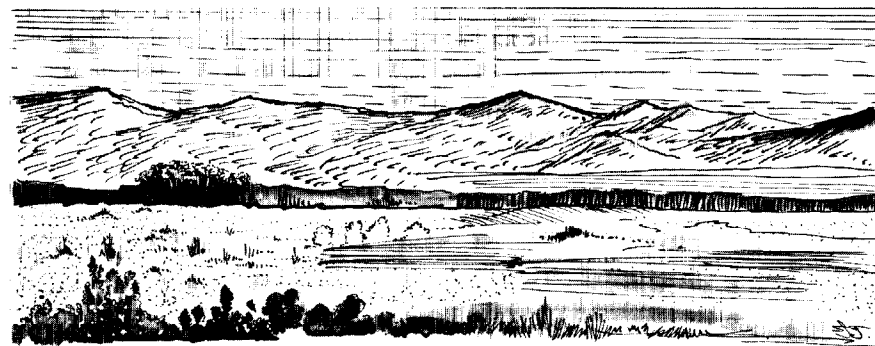
the homes and farms there, the great railroad bridge, and the Government works at Laguna dam, above Yuma.

It is difficult to estimate how many people have settled in the valley, the figures varying from 6,000 persons up to high as 10,000. It is also difficult to ascertain how much money has been actually spent in real improvements. Town lots have been laid out, sold at auction, and several hundred buildings erected in the various small settlements scattered throughout the tract. The greater part of the public land has been taken up under the homestead or desert entry laws, and sufficient work has been done to secure title. Some crops have been raised, and under favorable conditions the output in the near future will be large.

The actual amount of tangible wealth or securities possessed by the settlers to-day upon which money can be raised is believed to be very small. Nearly all individual property has been expended in securing water rights from the California Development Company, or from the other organizations handling the water supply and controlled by this company. It is evident that the people have slender resources to fall back upon, and, in view of the threatened calamity are practically helpless. The California Development Company is also unable to meet the exigency. The obligations assumed by the sale of water rights are so great that the property of the company is not adequate to meet these obligations; in other words, a gift of the visible property of this company and of its rights would not be a sufficient offset to the assumption of its liabilities. Nevertheless, the people in their desperation were reported as trying to issue and sell bonds secured by their property in order to give to the California Development Company a million dollars to assist in repairing the break.

The complications which have arisen from the transfer of the property and the involved relations of the California Development Company with its numerous subsidiary companies are such that the United States would not be justified in having any dealings with this company until the complications are removed and the Government has a full understanding of every phase of the situation.

It has been stated above that the California Development Company has not the financial strength to repair the break and to restore the bank of the Colorado River to such permanent condition that a similar occurrence can



not happen. It is further understood that the Southern Pacific Company, having expended \$2,000,000 or more for the protection of its interests, declines to furnish more money for the California Development Company to save the Imperial Valley, beyond controlling the present break in the river bank. The owners of the property in Imperial Valley, both farmers and townspeople, together with the Southern Pacific Company and the California Development Company, have combined to call upon the Government for a contribution to assist the California Development Company to the extent of erecting permanent works to insure protection for the future.

THE RIVER MUST BE CONTROLLED

If the river is not put back and permanently maintained in its natural bed the progressive back cutting in the course of one or two years will extend upstream to Yuma, as before stated, and finally to the Laguna dam, now being built by the Government, thus wiping out millions of dollars of property belonging to the Government and to citizens. Continuing farther, it will deprive all the valley lands along the Colorado River of the possibility of obtaining necessary supply of water by gravity canals.

The great Yuma bridge will go out, and approximately 700,000 acres of land as fertile as the Nile Valley will be left in a desert condition. What this means may be understood when we remember that the entire producing area of southern California is about 250,000 acres. A most conservative estimate, after full development must place the gross product from this land at not less than \$100 per acre per year, every ten years of which will support a family when under intense cultivation. If the break in the Colorado is not permanently controlled the financial loss to the United States will be great. The entire irrigable area which will be either submerged or deprived of water in the Imperial Valley and along the Colorado River is capable of adding to the permanent population of Arizona and California at least 350,000 people, and probably 500,000. Much of the land will be worth from \$500 to \$1,500 per acre to individual owners, or a total of from \$350,000,000 to \$700,000,000.

The point to be especially emphasized is that prompt action must be taken, if any; otherwise the conditions may become so extreme as to be impracticable of remedy. The history of past attempts to close the break in the river bank has shown that each time, through delay, the work has cost double or treble what it would have cost had prompt action been taken. It is probable now that with an expenditure of \$2,000,000 the river can be restored to its former channel and held there indefinitely; but if this action is not taken immediately, several times this sum may be required to restore it, and possibly it can not be restored unless enormous sums are expended.

ROOSEVELT POINTS OUT SOUTHERN PACIFIC ONLY HOPE

At the present moment there appears to be only one agency equal to the task of controlling the river, namely the Southern Pacific Company, with its transportation facilities, its equipment, and control of the California Development Company and subsidiary companies. The need of railroad facilities and equipment and the international complications are such that the officers of the United States, even with unlimited funds, could not carry on the work with the celerity required. It is only the fact that the officers

of the Southern Pacific Company, acting also as officers of the California Development Company, have been able to apply all its resources for transportation, motive power, and the operation of the road that has made it possible to control the situation to the extent which they have already done. The Southern Pacific Company is now reported to be working strenuously to fill the break through which the Colorado River is flowing westward to the Salton Sea, and in repairing and building levees to keep out the high water due next March. This work will be more or less of a temporary character. Further construction is necessary and all temporary works must be replaced by permanent structures. It is estimated that for this additional work \$2,000,000 should be available. The question as to what sum, if any, should be paid to the Southern Pacific Company for work done since the break of November 4, 1906, is one for future consideration; for work done prior to that date no claim can be admitted.

But one practicable course is now open for consideration.

The Southern Pacific Company must continue its work to close the break and restore the river to its proper channel. The United States can then take charge, making the protective works permanent and providing for their maintenance.

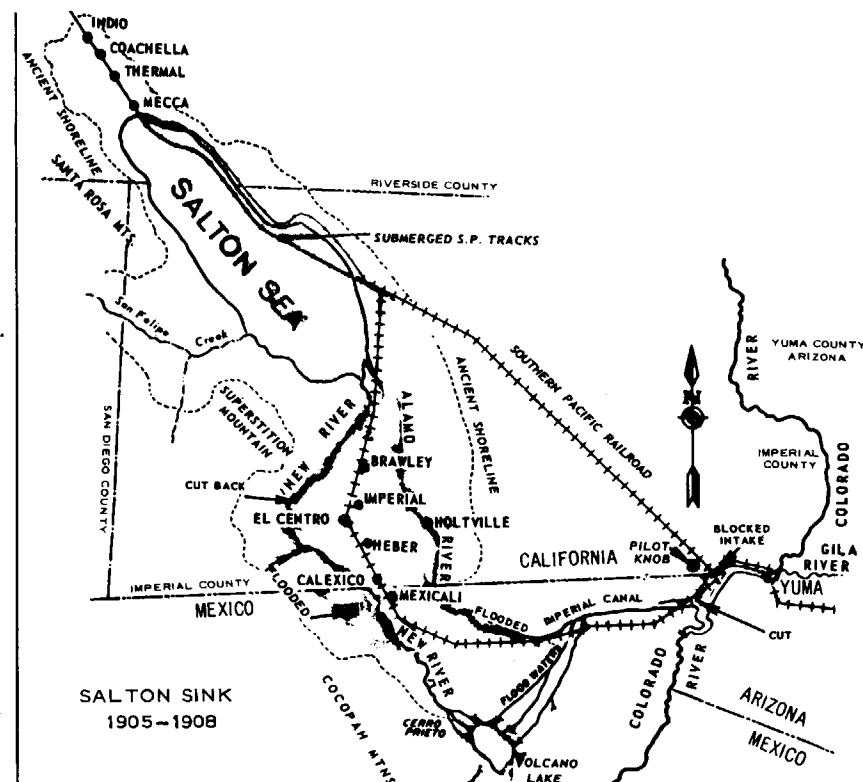
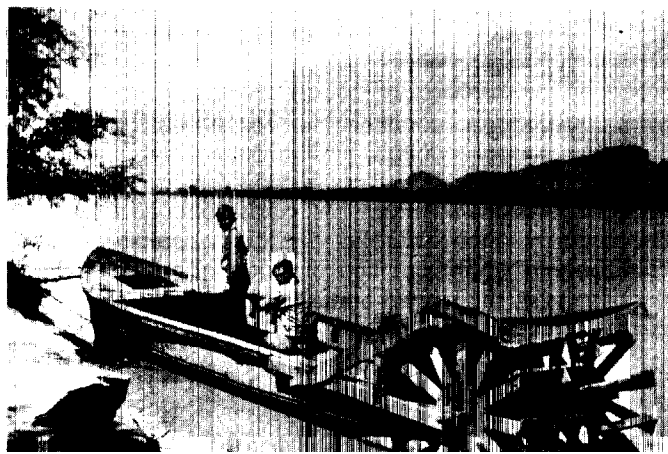
It is not believed that a free gift of this money should be made, as by its investment the stability of property of great value will be secured and the increase in land values throughout the Imperial Valley will be sufficient to justify the provision that this money should be returned to the Government.

The Reclamation Service should be authorized to take steps at once for the construction of an irrigation project, under the terms of the reclamation act, for the lands in the Imperial Valley and in the lower Colorado River Valley. The Service should be in position to proceed actively with the organization of the project and the construction of the works as soon as the conditions in regard to the protection of the valley against overflow will justify expenditures for this purpose.

To accomplish this, the United States should acquire the rights of the California Development Company and its subsidiary corporations in the United States and Mexico upon such reasonable terms as shall protect the interests of the Government and of the water users. The United States should obtain by convention with Mexico the rights to carry water through that country upon reasonable conditions.

Early Colorado

River Boat.



Most of the land in the Imperial Valley has been entered under the terms of the desert land act or the homestead laws, and titled has not passed out of the United States.

The construction work required would be: The main canal, some 60 miles in length, from Laguna dam into the Imperial Valley; the repair and partial reconstruction of the present distribution system in the valley and its extension to other lands, mainly public; diversion dams and distribution systems in the Colorado River Valley, and provision for supplementing the natural flow of the river by means of such storage reservoirs as may be necessary. This would provide for the complete irrigation of 300,000 acres in the Imperial Valley and for 400,000 acres additional in the United States in the valley of the Colorado in Arizona and California.

The reclamation fund now available has been allotted for projects under construction, and the anticipated additions to the fund for the next few years will be needed to complete these projects. It will therefore be impossible to construct a reclamation project for the Imperial Valley with the funds now in hand, and it will be necessary for Congress to make specific appropriation for this work if it decides to undertake it.

Such appropriation would be expended for a project carried out under all the provisions of the reclamation act, requiring the return to the reclamation fund of the cost of construction and maintenance of the irrigation work, and there should be the further requirement that the cost of permanent protective works and their maintenance be repaid.

The interest of the Government in this matter are so great in the protection of its own property, particularly of the public lands, that Congress is justified in taking prompt and effective measures toward the relief of the present situation. No steps, however, should be taken except with a broad comprehension of the magnitude of the work and with the belief that within the next ten years the works and development will be carried out to their full proportions.

The plan in general is to enter upon a broad, comprehensive scheme of development for all the irrigable land upon Colorado River with needed storage at the headwaters, so that none of the water of this great river which can be put to beneficial use will be allowed to go to waste. The Imperial Valley will never have a safe and adequate supply of water until the main canal extends from the Laguna dam. At each end this dam is connected with rock bluffs and provides a permanent heading founded on rock for the diversion of the water. Any works built below this point would not be safe from destruction by floods and can not be depended upon for a permanent and reliable supply of water to the valley.

If Congress does not give authority and make adequate provision to take up this work in the way suggested, it must be inferred that it acquiesces in the abandonment of the work at Laguna and of all future attempts to utilize the valuable public domain in this part of the country.

THEODORE ROOSEVELT

The WHITE HOUSE, January 12, 1907

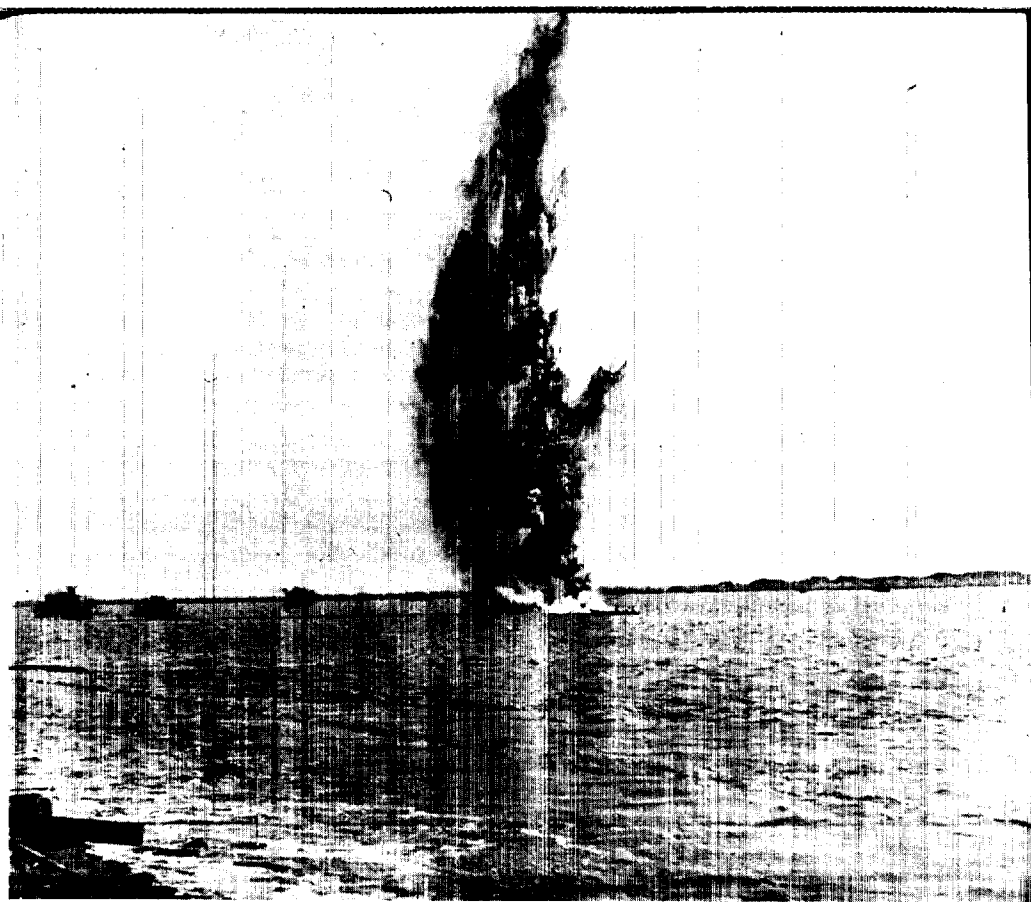
PRESIDENT'S MESSAGE ANGERS SETTLERS

The president's message incensed many of the settlers, and Otis B. Tout in his book "The First Thirty Years" states:

"George Chaffey, an important figure in the early affairs of the California Development Company, noting the numerous false statements and insinuations against the California Development Company, in the President's message, immediately wrote the President, calling his attention to the aspersions, false statements, and inaccuracies. President Roosevelt responded promptly. He transmitted to George Chaffey the original document on which the President's message was based. It was written by Reclamation Chief Charles D. Walcott."

When the Flint bill reached the house, Representative S. C. Smith from the Eighth California Congressional District, located in Imperial Valley, at the request of his constituents, vigorously opposed the bill. He stated that with few exceptions the farmers preferred the existing irrigation arrangement to those which would follow under the Reclamation Service, and that they desired assistance in river control work only. The settlers feared that there would be an increase in the cost of the water, and also they would be forced to reduce the size of their holding. The bill failed to pass, largely due to Smith's efforts.

In spite of appeals to Congress by President Roosevelt, who had promised to reimburse the company; by President Taft who urged reimbursement as a national obligation, it was not until April 1, 1930, 24 years after the saving of the Valley that any repayment was made, and on that date the Southern Pacific received a check for \$1,012,665.17.



Dynamiting to Stop the Flooding Colorado River.
Courtesy Imperial Valley Development Agency



Early Indian Territory — Corner of Miles and Jackson.
Courtesy Indian Chamber of Commerce

Modern Development



The Imperial Irrigation District was organized in July 1911, to acquire the rights and properties of the California Development Company and its Mexican Company since operation under the receivership after its bankruptcy was unsatisfactory. In June, 1916, by prior agreement, the District paid \$3,000,000 for rights and holdings they held in both companies.

The passage by Congress in December, 1928 of the Boulder Canyon Project Act made possible the construction of Hoover Dam, the Imperial Dam and the All-American Canal system. One of the primary reasons for the construction of Hoover Dam was to control the floods and silt content of the Colorado River and to prevent another flooding of the Imperial Valley.

By 1940 waters from the All-American Canal were being used for irrigation, and at the present time more than 450,000 acres are under irrigation by this water. The Coachella Branch of the All-American Canal was completed in 1948. The main canal which is now 125 miles long, will when its laterals are completed, irrigate more than 80,000 acres in the Coachella Valley.

Since the time of its formation the level of the Salton Sea has varied according to the amount of irrigation and leach water that has drained into it. The New and Alamo Rivers emptying into the southern end of Salton Sea are formed by waste water drained off Imperial Valley Farm lands. In the past ten years Salton Sea has risen about 10 feet, but water matched by evaporation and inflow, according to water engineers, is about stabilized. The water level varies about one foot annually, being highest in April and lowest in October.

Although Salton Sea is some 30 miles long and 13 miles wide, it averages only about 35 feet in depth in its center areas and its water temperature varies from the low 50's in the winter to as high as the upper 90's in the summer.

Because of its interesting geologic background, Salton Sea and the Imperial Valley, has always attracted nationwide interest and has offered a fertile field for writers of all types, both literary and scientific. "The Winning of Barbara Worth" written in 1910 by Harold Bell Wright, was a best seller that told the story of the river break in 1905 to 1907. Since that time there have been many hundreds of books, magazine articles, scientific papers, and newspaper stories about the area. Many of the stories were sensational and some were not based on fact, and these were detrimental to the Valley by creating fears for the future development of the area.

However as Munson J. Dowd pointed out in a talk entitled "Historic Salton Sea" that was published in booklet form by the Board of Directors of the Imperial Irrigation District:

"With the completion of Hoover Dam and the All-American Canal, the last of the major problems which confronted Imperial Valley was eliminated, and it may now be said with confidence that no section of our nation is more assured a permanent and prosperous future than in this Valley. But a certain class of writers was not to be discouraged by this changed situation. Of recent years, they have discovered new "dangers" to use as a basis for their books and articles predicting the doom of the Imperial Valley. Of course, Coachella Valley would have to share the same fate as Imperial Valley, should these imagined "dangers" prove to be real, but as a rule most of such stories deal mainly with the terrible fate awaiting Imperial Valley."

He points out that many articles are based on erroneous theories including one that since the Hoover Dam now cuts off the tremendous volume of silt in the river, that the high tides of the gulf will eventually cut through the delta that separates the Valley from the gulf, covering the area with sea. That earthquakes have opened cracks in the delta and the water is seeping into the sea. Or the mysterious and wierd Salton Sea, is rising for no reason and may again cover the valley. None of these statements are true and it is regrettable that such articles are ever published.

The Salton Sea area, the Imperial and Coachella Valleys has thrived on crises, and setbacks that would have discouraged many. For this reason, although there was concern, most of the residents were not too upset with a report released on January 26, 1966 by the firm of Pomeroy, Johnston and Bailey, civil and chemical engineers.

The Coachella Canal — Branch of the All-American Canal.

Gillman Studio Photo



Salt and other minerals leached out of the farm land are carried into the Salton Sea by the waste irrigation water and it had been predicted by other scientists that perhaps within 25 years the Salton Sea might become too heavily mineralized to support game fish. This was an educated guess based on the present inflow and evaporation rates.

However, according to Dr. Richard D. Pomeroy's report, the level of the Salton Sea is no longer rising. "New facilities for better control of the irrigation water supply and a campaign by the irrigation districts to teach farmers the most efficient methods of water and conservation are becoming effective. The level is falling. The Sea will become saltier. The salt may begin to harm the fish as soon as 1970, and probably will destroy the fishery entirely by 1985," he points out.

Among the various plans considered, according to Dr. Pomeroy the one appearing most favorable functionally, and as low or lower in cost than any other, is to dike off an area of the Sea. Diking off 29 square miles, or about 9 percent of the total area, will provide a basin for final evaporation and collection of salts, and thus accomplish salinity control. The cost is estimated to be \$22,000,000. A larger area will be needed to gain a measure of control over the level of the sea.

Dr. Pomeroy's report had some interesting figures on the fishing and other activities in the Salton Sea area.

"Anglers presently take corvina at a rate of about 500,000 a year, weighing a total of a million and a half pounds.

Salton Sea is also a popular place for boating and water skiing. The State Department of Beaches and Parks has established a state park along 19 miles of the shoreline. Several private developments cater to visitors, and Salton City, on the southwest side, is a \$50,000,000 residential and recreational development.

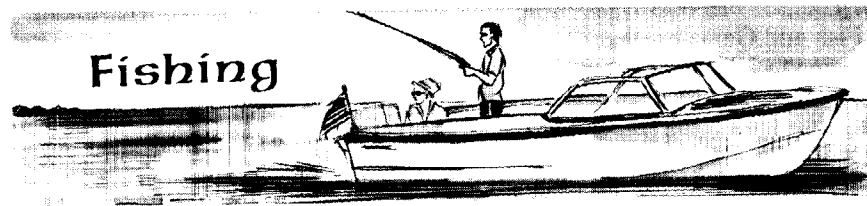
The recreational activity associated with Salton Sea is equivalent to an industry with a gross annual product of \$25,000,000. The net recreational benefit of Salton Sea, over and above the sums spent by visitors in taking their pleasure there, is appraised at \$2,250,000 annually. The valuation of the Sea as a resource is \$40,000,000 on the basis of continued usage at the present rate. But usage is increasing, and the valuation will increase to \$90,000,000 in twenty years, and \$200,000,000 in forty years. These will be the values, that is, if the Sea remains in its present productive state.

There is no closed season on fishing, and anglers have no great difficulty in catching their daily limit of 9 corvina.

Potentially, the Sea can produce fish in far greater quantity than are now taken. The Department of Fish and Game is embarking upon a research program that may lead to the establishment of more efficient food chains. For this to be fruitful, fish will have to be taken at a high rate. Theoretically, the Sea might produce 80,000 tons of fish annually. It is unlikely that this theoretical maximum can be reached, but it is reasonable to expect that the annual catch could be at least 20,000 tons. This is more than twenty times the present annual catch.

Another challenge by nature and changing conditions to be met, but after such a temptuous past, the residents of the area will no doubt meet it, and solve the problem as they have so many more.

Fishing



No matter what the Salton Sea means to some, to the vast majority the one big thing is — fishing. This fabulous fishermen's dream is well known to sportsmen throughout southern California, but few know of the battle by the California Department of Fish and Game to accomplish this fishery program. Below is a history of the program as carried out by the Department of Fish and Game.

It is probable that during the breakthrough of the Colorado River all living organism then in the river were introduced into the new sea it formed. Today a few carp, bluegills, sunfish and catfish are present in Salton Sea, but only around the mouths of the freshwater inlets such as the New and Alamo Rivers, the Coachella Canal wasteway and the Whitewater Drain.

The mullet, a saltwater fish, formerly migrated from the Gulf of California into Salton Sea via the Colorado River and a commercial mullet fishery existed at Salton Sea from 1915 until 1953. Now the mullet's migration route is blocked below Imperial Dam and this species is dying out in Salton Sea.

Of all the fish species introduced by the Colorado River breakthrough, only the minnow-like desert pupfish and the mosquitofish have been able to adapt and sustain themselves in Salton Sea through natural reproduction.

The vast expanse of Salton Sea has long presented a challenge to California's Department of Fish and Game, but a lack of funds and manpower precluded any concerted attempt to establish game fish in the Salton Sea until 1950.

Following is a chronological history of the Department of Fish and Game's introduction of fish life into Salton Sea, and the results to date:

1929 . . . Striped bass transplanted from San Joaquin River, none ever recovered or seen again.

1930 . . . Striped bass transplanted from San Francisco Bay, but none ever recovered. Ghost shrimp, pile worms (*Neanthes*) and mudsuckers from San Diego Bay were introduced by Warden Eddie Glidden to provide food for the striped bass. Although the striped bass failed, these fish-food introductions led to important results in later years.

The mudsucker has thrived in some marginal areas of Salton Sea and is now commonly used as live bait by Salton Sea anglers.

The pile worm thrived and is now present by the billions, forming an all-important link in the fish-food chain in Salton Sea. These aquatic worms, one to three inches long when full grown, spend most of the life in the bottom mud and barnacle shells. When mature they swim to the water's surface to spawn, at night, and this is when they are easy prey for fish.

This worm is the principal food of the small fish in the Salton Sea, and the small fish in turn are the food of the larger fish. Without the pile worm the entire Salton Sea fish-food chain would undoubtedly collapse.

1934 . . . 15,000 silver salmon fingerlings produced at a Department of Fish and Game hatchery at Forest Home, in the San Bernardino Mountains, were stocked in Salton Sea by D. A. Clanton, then in charge of the department's inland fisheries program in Southern California. None were ever seen again.

1940 . . . During this year a small barnacle (*Balanus amphitrite*) was first noted in Salton Sea. How this barnacle was introduced into the sea is not known, but it has since become so abundant there that it covers any object that is submerged and stationary. Barnacle shells now cover the beaches around much of Salton Sea's shoreline.

1948 . . . This year marked the beginning of a major effort by the Department of Fish and Game to develop a successful sport fishery on Salton Sea. Organizers and leaders of the program were Freshwater Fisheries Biologists Willis Evans and Phil Douglas and Marine Biologist John Fitch, through whose combined planning and efforts all successful transplants of ocean fish into Salton Sea were made. Many other men within the department put in countless hours of hard work to carry out the program, which has the vigorous support of State Fish and Game Commissioner Harvey Hastain, of Brawley.

In an attempt to establish a population of bait-size fish in Salton Sea, to serve as food for game fish, anchovies from the Gulf of California and anchovies from Alamitos Bay, Mexico, were transported by plane and stocked. None were ever seen again.

1950 . . . The biologists decided that selective introductions of species of fish were taking too long, changed to "shotgun" type planting, taking every

desirable species they could net out of the Gulf of California and releasing them into Salton Sea after a 200-mile haul in tank trucks.

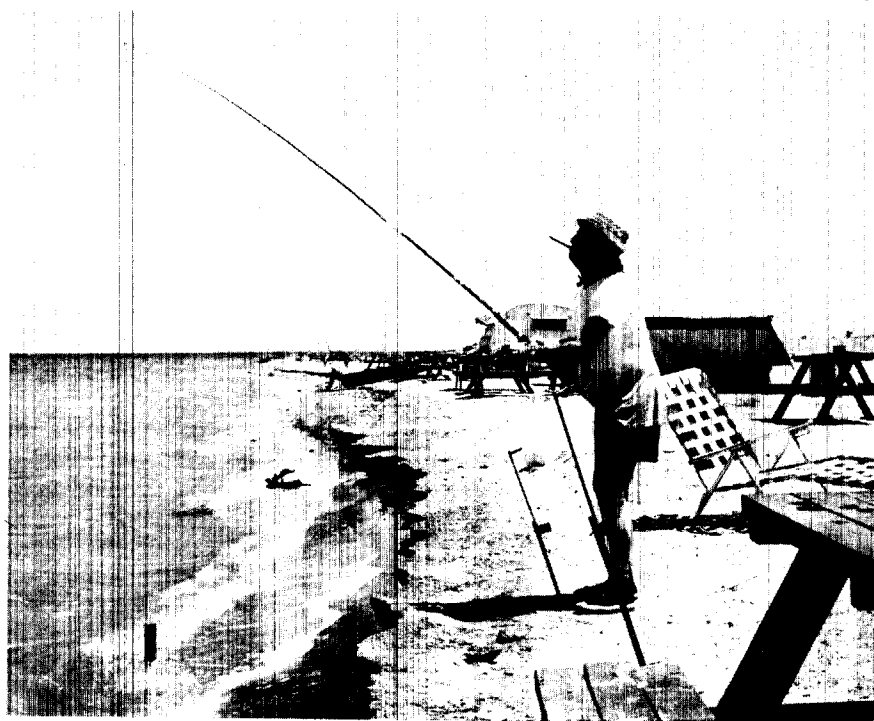
Under this program the first orangemouth corvina (the first saltwater game fish to become successfully established in Salton Sea), the first short-fin corvina and the first gulf croaker (*Bairdiella*) were transplanted in October, 1950.

A close relative of the white sea bass, corvina are terrific fighters, firm fleshed and among the most delicious of all table fish. In their native home, the Gulf of California, they attain weights up to 30 pounds.

The little gulf croaker, a bait-size fish, became quickly established in Salton Sea and provided the kind and quantity of food needed by the corvina.

Other ocean species introduced during 1950 included pompano, halibut, white and silver perch, bonefish, smelt, pez del rey, mojarra, grunion, anchovies, anchovyetsas, sardines and totuava.

In the hope that they or their free-swimming larval forms would provide additional fish food, one species of squid, four kinds of clams, three kinds of mussels and two kinds of oysters were introduced into the Sea. Some of them apparently did well for a while but none are known to exist in Salton Sea now.



1951 . . . In addition to more transplants of corvina and other ocean fish species previously introduced, the year 1951 marked another important "first" for Salton Sea — the first and only transplant of sargo, sometimes called China croaker, perch or blue bass. The total sargo transplant numbered 65 fish that Biologists Evans and Douglas caught on hook and line at San Felipe, Mexico. From this small transplant, the sargo subsequently became the second species of saltwater game fish successfully established in the Salton Sea.

A small, swimming crab and a species of edible shrimp were introduced from the Gulf of California. The swimming crab survived in the Salton Sea for at least two years but has not been observed since 1953.

By the end of 1951 the Department of Fish and Game had transplanted a total of some 34,000 fish of 35 different saltwater species from the Gulf of California into Salton Sea.

1952 . . . Department of Fish and Game Biologists reported of all the fish transplanted, only the corvina and gulf croaker were known to have survived and reproduced in Salton Sea. By this time a total of 474 adult corvina had been transplanted as brood stock.

1953 . . . At the request of the Department of Fish and Game, California's Wildlife Conservation Board authorized an expenditure of considerable amount for a three year Salton Sea study by the University of California at Los Angeles. Dr. Boyd Walker headed the UCLA study group composed of Dr. Lars Carpalan, Dr. Richard Whitney, and Biologist Richard Linsley.

The study was carried out under contract with the Department of Fish and Game. A Salton Sea Project Advisory Committee, made up of DFG Biologists, was named to assist in planning as the study progressed.



A 23 Pound Corvina Caught by Mrs. Daisy Kadoun of Long Beach.
Photo by Mike Leonte

During 1953 the Department of Fish and Game transplanted additional corvina, corbina, pompano, white croaker and thread herring from the Gulf of California, and such shellfish as sea and bay mussels, two kinds of oysters and three varieties of littleneck clams.

1954 . . . Work by UCLA research group actually got under way in March and gill-setting promptly recovered corvina that had been spawned in Salton Sea.

The little gulf croaker was there in abundance, although only 67 of them had been planted into Salton Sea — 57 in 1950 and 10 more in 1951. Averaging about six inches in length, the croakers were the staple diet of the corvina.

1955 . . . As the study progressed 114 more adult corvina were seined from the Gulf of California by DFG crews and transplanted in Salton Sea.

Threadfin shad, a minnow-like forage fish introduced into California's section of the Colorado River as food for largemouth bass only eight months previously, were found in Salton Sea in large numbers in September of 1955. They had entered the sea in waste irrigation water and became food for the larger corvina, primarily during the summer months.

1956 . . . 1,601 more adult corvina were transplanted into Salton Sea by the Department of Fish and Game, bringing the total corvina transplanted to 2,189. None have been introduced since that time.

In October of this year the first sargo were recovered from Salton Sea — a little five-incher less than one year old that had obviously been hatched there.

1957 . . . By early March of this year additional proof of successful corvina spawning in Salton Sea was turning up in the research nets, in the form of baby corvina two and one-half to three inches in length. Project biologists classified these as one or two month old fish hatched in January or February.

"Stu" Gummer of Indio Displays a Typical Corvina Catch.





Mike Leonte of Desert Shores, His Nephew Bobo, and Tom Baker of Huntington Beach Look Over Some Fine Corvina.

Norman Phillips Photo

It is now apparent that the corvina spawning extends at least from January into July.

One more sargo, the second taken, was recovered on a beach seine. This was another baby fish hatched in Salton Sea.

By October of 1957 large numbers of corvina averaging one and one-half pounds were being taken in the research nets, and the biologists estimated Salton Sea's corvina population at approximately one million fish of catchable size. The largest so far recovered by netting weighed nearly 17 pounds.

It was obvious to the biologists that Salton Sea's corvina were ready for fishing, but no one had figured out a really successful way of catching them by hook and line. An occasional corvina was being taken on a bass plug, wobbling spoon, weighted spinner, fresh shrimp or cut bait, but very few fish were being taken by any method and very few fishermen were giving it a real try. Most of those who did got skunked. Corvina are schooling fish, and the schools in Salton Sea at this time were undoubtedly widely dispersed.

1958 . . . In May of 1958 a small group of Imperial Valley anglers found that they could rather consistently take corvina weighing from four to eight pounds by using a surfcasting outfit to toss a wobbling spoon around the inshore areas where the corvina were spawning. They first hit the corvina in the shallow water off Bombay Beach and the mouth of Salton Creek, and almost all of their fishing was confined to this general area.

As summer approached, the corvina left the shoreline and moved to deeper water near the middle of the Sea, where a few anglers made spectacular catches in mid-July. Anchoring in 25 to 35 feet of water, they cast

out four-inch wobbling spoons, let them sink to the bottom and began their retrieving.

One such outing in late July two fishermen had 52 corvina hookups. They kept six fish apiece (the limit on corvina at Salton Sea at that time) and their twelve fish weighed 119 pounds, averaging just under 10 pounds a piece. The largest tipped the scales at 15 pounds four ounces.

By early August the corvina apparently had moved out of the deep water areas that had produced so spectacularly in July. Live mudsuckers, fished on or near the bottom had by now become the most popular corvina bait at Salton Sea, although wobbling spoons continued to produce the desired results for those who used them.

The biologists report that during August and September the bottom water in the center of Salton Sea is deficient in dissolved oxygen, a condition that forces the corvina to seek a depth of not over 20 feet. That's where the fishermen caught up with the corvina again in August — generally at depths of ten to fifteen feet.

By October the corvina were hitting at depths ranging four to fifteen feet and limit catches of two to 10 pounders were common off such area as the old salt works 11 miles north of Niland, Bombay Beach, and the mouth of the Whitewater Drain.

Fishing was still excellent in early November when DFG research nets showed there was an abundance of corvina at four to fifteen feet depths along both the east and west shores of Salton Sea. Five and six pound corvina appeared most abundant but ten pounders were common.

This doesn't mean that an angler could count on catching Salton Sea corvina at any given time or place. It would be more realistic to say that by 1958 corvina fishing at Salton Sea was a good bet but not a sure thing. Fishing was excellent and six-fish limits were relatively easy when the angler was working over a school of corvina, but there could be a lot of water and a lot of fishing time between schools. From late fall until their spawning season begins in late winter or early spring, the corvina schools roam all areas of the Salton Sea at will.

(Note: In 1965, the limit on corvina was raised to nine.)

Another Salton Sea "first" occurred on September 17, 1958, when Leo La Flame, an employee at the U.S. Salton Sea Base near Westmoreland, made the first verified catch of sargo out of Salton Sea. Base personnel quickly followed his lead and, fishing off the Base dock, using shrimp for bait in about 15 feet of water, they consistently took nice strings of sargo up to 12 inches in length. They also caught good numbers of corvina on their shrimp bait while fishing for sargo.

Fishermen are warned that the U.S. Salton Sea base and a large portion of the southwest area of Salton Sea itself are closed to public entry. Any unauthorized person entering this closed-water area is endangering his own life.

So far, each year has brought a rather heavy die-off of gulf croaker in Salton Sea during August and September, and considerable numbers of these dead fish may be seen along the shoreline. The die-off involves only the

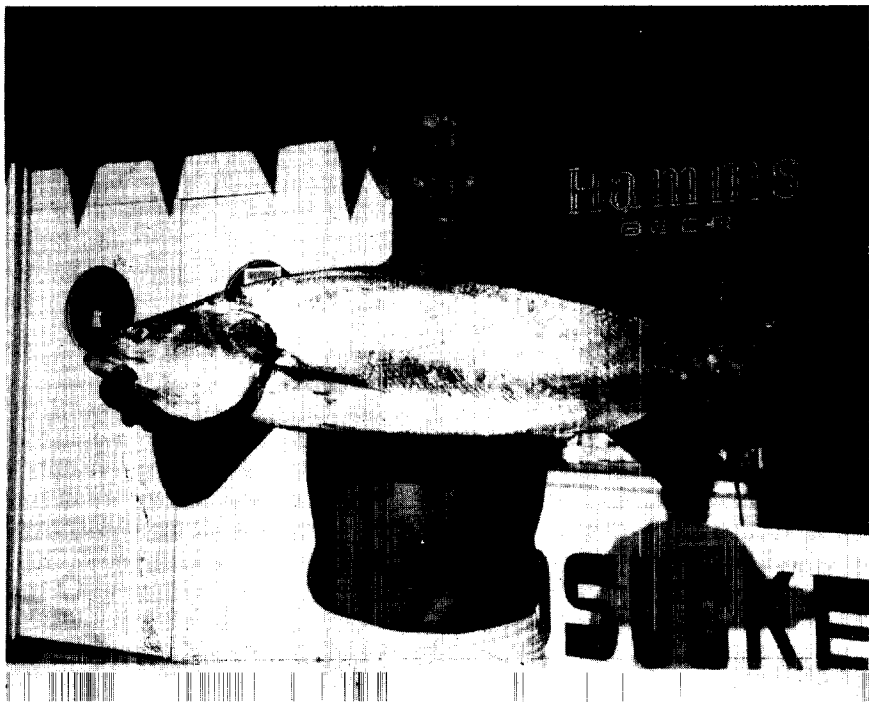
croaker and clearly demonstrates how completely these particular fish depend on the pile worm for food.

In late summer, decaying organic matter on the bottom of Salton Sea robs the bottom water of oxygen in an area of some 40% of the sea. The pile worms in that area die as the result of oxygen deficiency, and large numbers of gulf croaker die of starvation. However, tremendous numbers of these prolific little fish survive the ordeal and the trouble eases as fall progresses. The croaker population seems to be adjusting to this problem and the die-off apparently is diminishing each year. Their population appears to be stabilizing at a level the food supply will support.

The gulf croaker isn't large enough to be classed as a real game fish, but is good to eat and may be easily taken on nearly any small bait or flyrod lure. They are in the Salton Sea by the millions.

California's Department of Fish and Game is continuing its periodic sampling of Salton Sea's fish population to keep tabs on spawning, survival, food conditions, growth rates and the general abundance and health of the various species. The over-all project now adds up to one of the most successful fisheries management programs on record anywhere. A vast inland sea, previously all but barren, now offers good game fish in abundance.

The above history of fish-planting in the Salton Sea, courtesy of the California State Fish and Game Department.



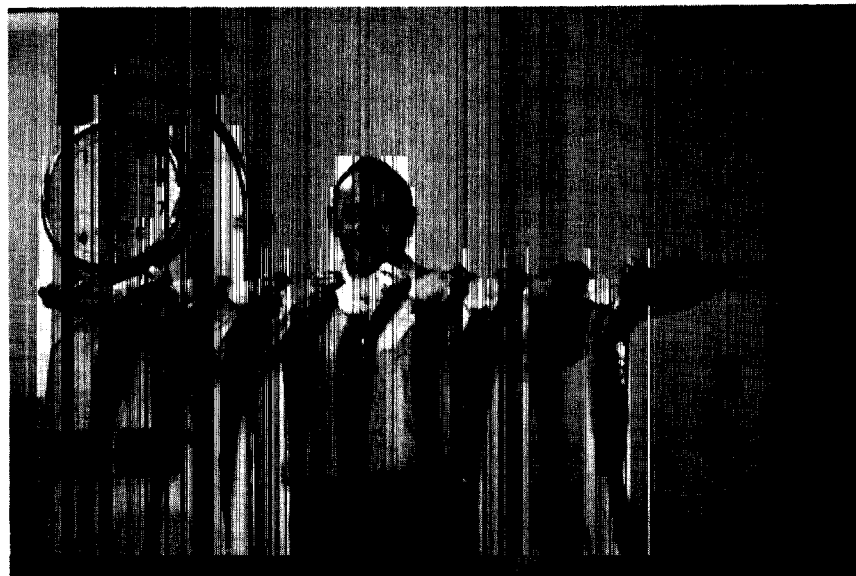
Chuck Ballard of Lakeside Displays a Corvina Caught Near Salton Bay Marina.

A fisherman who hasn't fished the Salton Sea has missed some of the best and liveliest sport of his entire fishing career. Within easy reach of most of Southern California, the Salton Sea fisherman usually finds the ramps and landings quite busy. But with nearly 340 square miles of water to fish on, it is never crowded. The millions of corvina that make the Salton Sea their home are, in the most part, very cooperative. That is, if one knows a few of the basics necessary to bring them into the boat.

The largest corvina ever measured by the California State Fish and Game was 23 pounds, but corvina up to 32½ pounds have been reported. It is believed that corvina do go 30 pounds or better, with fish in the 20 pound class not at all uncommon. This is a lot of corvina — and a lot of fight. The average can be said to be anywhere from two and a half to six pounds. To top it off, this fish is a gourmet's delight, for there is no finer tasting fish to be found anywhere, baked, broiled, fried or smoked. With the limit of nine, it is usually no problem, when they are hitting, to have enough corvina in the freezer to delight even the occasional fish-eater, for this is the finest.

Fishing the corvina can be done with fresh-water gear, but of a heavy-duty nature. Most fishermen prefer light salt-water tackle with a twenty to thirty pound test line and at least a two foot steel leader. A short steel leader is a waste of time, for the corvina when they are in a hitting mood will swallow most anything in sight, and that means plugs, hooks, and a foot or so of the steel leader. With a mouth full of razor sharp teeth the corvina can and does, shred a filament line without giving it a second thought. There goes a fine specimen, with a mouth full of hooks, sinker, and you have lost a fish, and what are his chances of survival. Not the most sporting thing to do. to even give them a chance to get away.

Johnny Perkins displays a limit of corvina caught off Desert Shores.
(Harry's Hookup Photo)

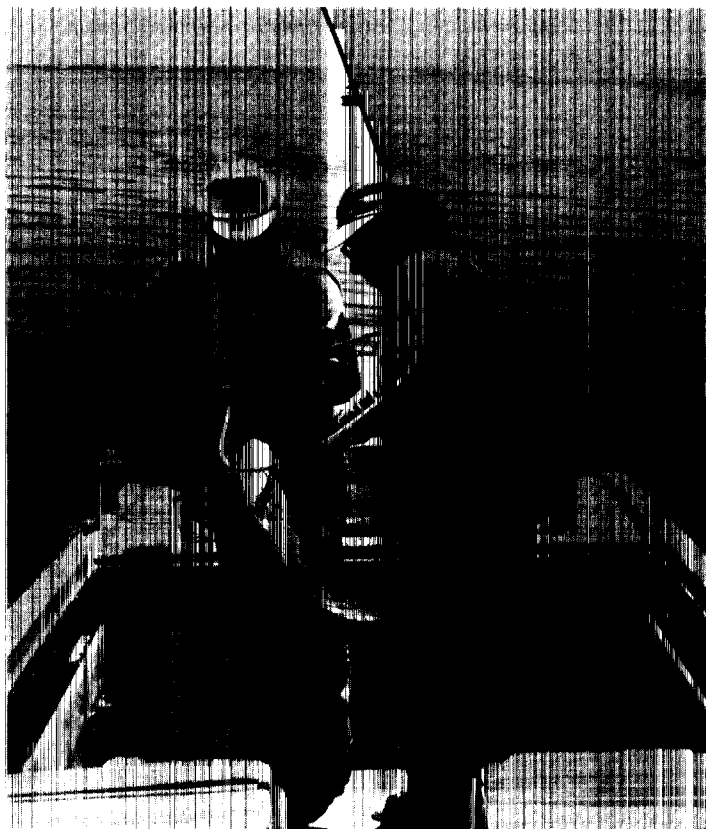


Most of the corvina fishing, and the best, is done from the boat.

Many fish from piers, some from the beach, but it has been proven that the corvina, being a wanderer and a school-fish does not stay in one place very long. They move about, and to move about with them, or after them is the best system. Watching the working birds helps to locate the schools. Drifting slowly will no doubt produce good results for sooner or later you are bound to run into a school, large or small. And you will know it.

If you have ever fished for catfish you will know when the corvina strikes, for the action is similar. They take the lure or bait in their mouth and for a short distance, run with it. Let them go, for if they feel a little resistance they spit it out. Let them go a little way then set the hook. This is where the lighter salt-water tackle is best — it is stiff enough to set the hook with a little jerk of the tip of the rod. Then you can have fun, for the corvina might head for the bottom, take off in a wide arc as they often do or break the water jumping and thrashing about. It is comparable to the albacore in fight that one catches in the Pacific.

As in most cases, live bait usually produces the best results. Cut shrimp and mudsuckers being the most available and bait can be had at most every landing and dock surrounding the Salton Sea. Of course, when the corvina are in the mood they will strike at almost any kind of bait or lure, live or artificial. Hooks from number five to number one or larger.



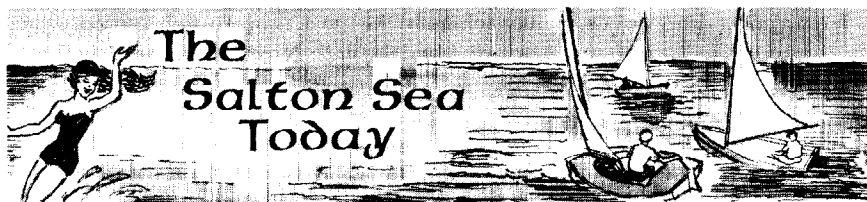
It is almost impossible to say when is the best time to fish for corvina. Some experts will say from April or May through November. Some will tell you during the day in the heat of summer or in the evenings. But it can truthfully be said that the orangemouth corvina are caught every day of the year at the Salton Sea, for there is no closed season and no restricted hours. Just remember one thing — don't go out in a boat without the proper safety equipment. If it looks like it is going to be rough or windy, head for shore, fast. The sudden winds that come up will usually give sufficient warning and if you heed it you are all right.

For a small fish but equal to fight for his size and weight is the sargo or ocean perch, blue bass or China croaker as the sargo is at times called. The average run from two to three pounds and here is where the lighter tackle will give the fisherman some good sport. The sargo are present in almost all parts of Salton Sea, but it seems that in the shallow areas offshore from the Red Hill Marina and near the mouths of the New and Alamo Rivers are most consistent. There were a number of dead trees south of Red Hill protruding from the water where the catch is also good. The sargo caught in these areas and along the cane jungles of the Alamo River do not run as large as those taken in the deep waters of the Salton Sea, but they are plentiful.

Cut pieces of frozen shrimp, red worms and most any bait used for catfish or bass is good. The success of lures for Sargo has not been too widespread and the worms and shrimp still seem to be the best.

Sargo, too, are a tasty dish. The Salton Sea is a provider of fine fish for many thousands. For years to come it will continue to be one of the very favorite spots of many thousands of successful and happy fishermen.

There is no closed season and fishing is permitted day and night at Salton Sea, so have at it



If the history of the Salton Sea has been an exciting one, the future promises even more. Although for a number of years, the Coachella and Imperial Valleys were prosperous farm communities, it was an area that did not attract sportsmen and fishermen to the extent that it does today. This is probably because the rest of Southern California still had open land, and there were many places to hunt and fish before the population explosion after World War Two.

The desert and date gardens were tourist attractions, and many drove by the Salton Sea, but there were no commercial developments at that time. The beginning of the Salton Sea as we know it today, was quite recent.

In May, 1958, M. Penn Phillips opened the development known as Salton City. Its bounding growth has amazed even blase Californians. With the ideal desert climate, in a valley ringed by majestic mountains, the Salton Sea had everything to offer the recreation-minded southern Californian. It only took the imagination of the developers to bring a whole new concept of Southern California living into being — the alluring combination of the desert and the sea.

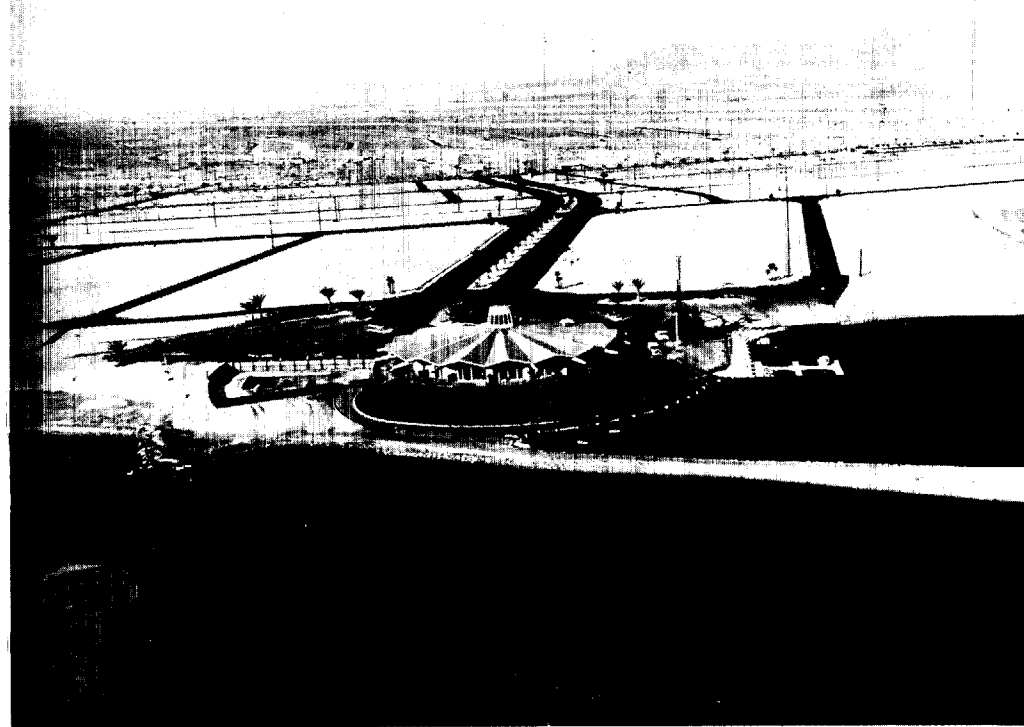
Marinas were constructed, the highways from Los Angeles were lined with cars pulling boats to the Sea. The Five Hundred Mile Championship Boat Race became a nationally known event, with racers from all over the world competing. Skiers were finding the Salton Sea's glassy surface on desert calm days an ideal spot to pursue their sport.

At the same time, the work of the California Department of Fish and Game began to pay off, and the news of the wonderful fishing began to spread. The whole place became alive with new people, interests and developments.

As with the early agricultural developers, private enterprise was the catalyst that stirred the interest and brought new people into the area. Television and radio stations extolled the joy of owning property at this shimmering desert-sea. Their enthusiasm spread the Salton Sea story, and soon all of California was aware of the potential of this long-neglected area of the state.

In 1959, Salton Sea Mar Vista Sales became active in sales and development in the area. The Holly Corporation took over the M. Penn Phillips interests at Salton City the same year. With heavy advertising campaigns, the companies brought busloads of new people into the area.

But the companies were doing more than selling property. Salton City was a planned community, planned for orderly growth to avoid the chaotic conditions that are so prevalent in other cities in Southern California. They had an intelligent master plan, with provisions for churches, schools, parks, recreational areas, residential family areas, multi-family areas and commercial areas.



Aerial View of Salton City and Salton Bay Yacht Club. *Courtesy Holly Corporation*

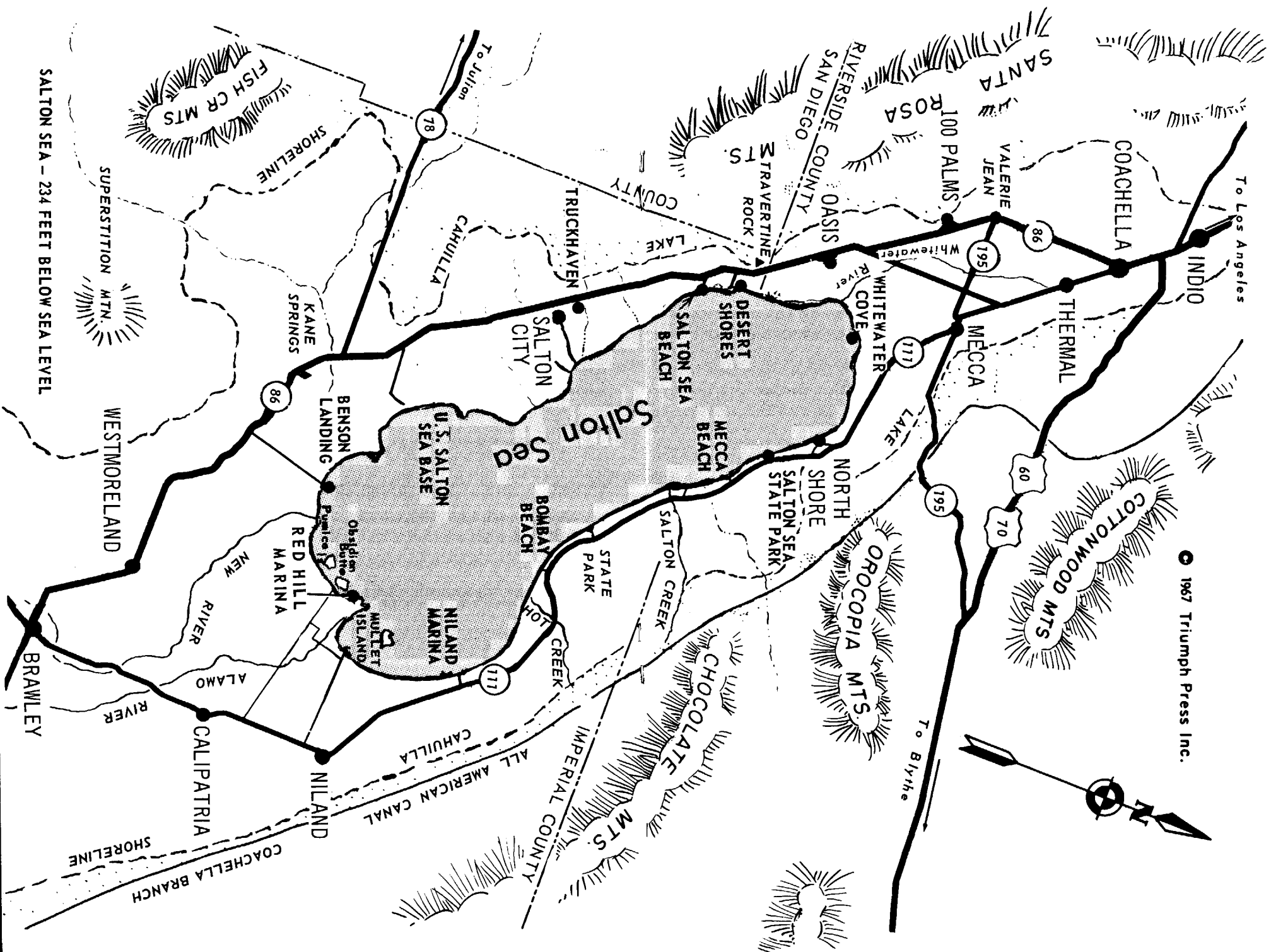
In February, 1961, a freshwater distribution system was completed to Salton City, 12 miles up Highway 86, as an approximate cost of one million dollars, including all wells, reservoirs and pumping equipment. It is estimated that today there is enough water available to handle a population of 40,000 persons. The area is annexed on to the Coachella Valley Water district, and there are 260 miles of in-tract water lines. Sewer lines have been completed and there are approximately 250 miles of paved roads.

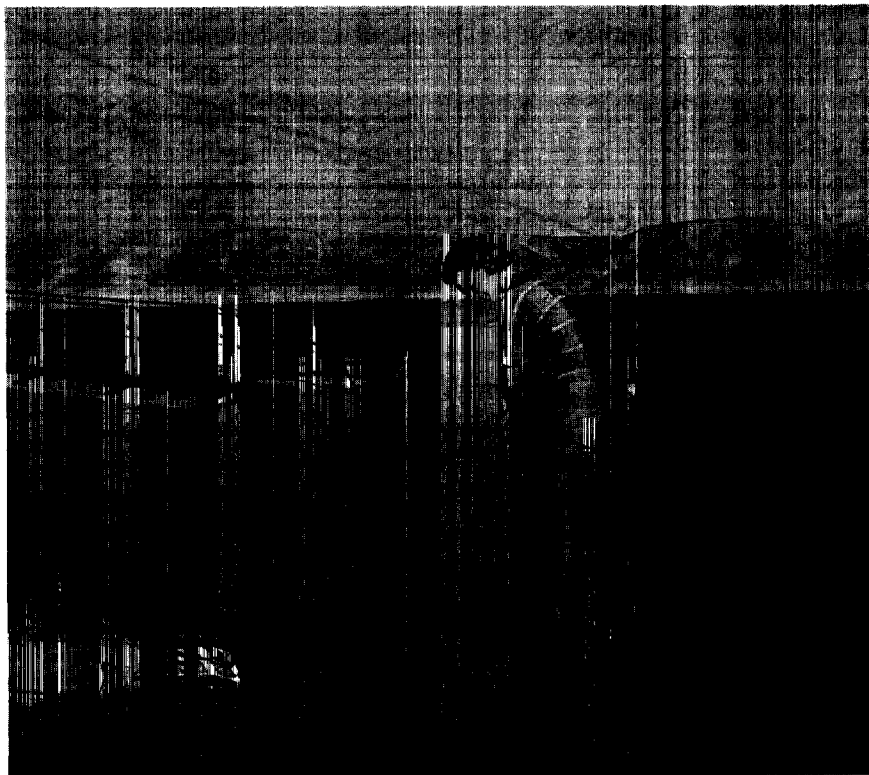
Salton City is composed of 19,600 acres on the west shore of the Salton Sea. It is approximately midway between Indio and El Centro on State Highway 86.

Salton City has its own asphalt and concrete plant located on the west side of Highway 86 and north of Tract 682. It is owned and operated by Milo Lubanko and Sons. They do all the paving for Salton City, at a cost of about \$25,000 per mile.

There are two fine marinas at Salton City. The larger one has ramps constructed to launch as many as 10 boats simultaneously, full fueling, storage, repair and parking facilities are available, as well as showers and restaurants.

The Salton Bay Yacht Club is open to the public and has an excellent restaurant and bar. The Club is an unusual circular, two-story building of 12,000 square feet, with facilities for feeding 300 people, where diners can enjoy a beautiful view of the Sea. There are launching facilities, private boat dockings, locker rooms, an outdoor swimming pool, all the facilities of a luxury club.





Golfing at Salton City is Now Popular Sport.

Courtesy Holly Corporation

Salton City can now boast of its own 18 hole golf course, built at a cost of more than \$350,000. This splendid recreation spot, has added even more to the popular area. The course is located on Marina Drive southwest of the Desert Garden Motel.

The airport, southwest of Highway 86, has two runways, 3500 and 4500 feet, and is open to the public. Construction of a complete airport, with private taxiways to backyard hangars for plane-owning residents is planned.

With the building of recreational facilities, new businesses began offering their services. Today there are approximately 20 businesses in the immediate area. Restaurants, markets, liquor stores, barber shop, engineering supplies, gift shop, a newspaper, "The Salton City Resorter," all of the necessities of modern day living.

The Desert Garden Motel and the huge new Holly House, one of the most elegant restaurants in the southland, are located on the highway at the entrance to Salton City. The restaurants and lounge, recently built at a cost of \$300,000, is one of the most important social centers in Salton City.

Also very popular is the Del Mar Club, built for the enjoyment of those who have purchased property in the Del Mar Estates, cost approximately \$150,000. Included in the recreational facilities are an Olympic swimming pool, shuffleboard, ping pong, and a marina with facilities for launching and storing boats, as well as a boat supply store.

The Dickey Townhouse, recently completed at a cost of \$100,000, for the first 10 units of a proposed 48-unit complex, has added greatly to the growing facilities in Salton City.

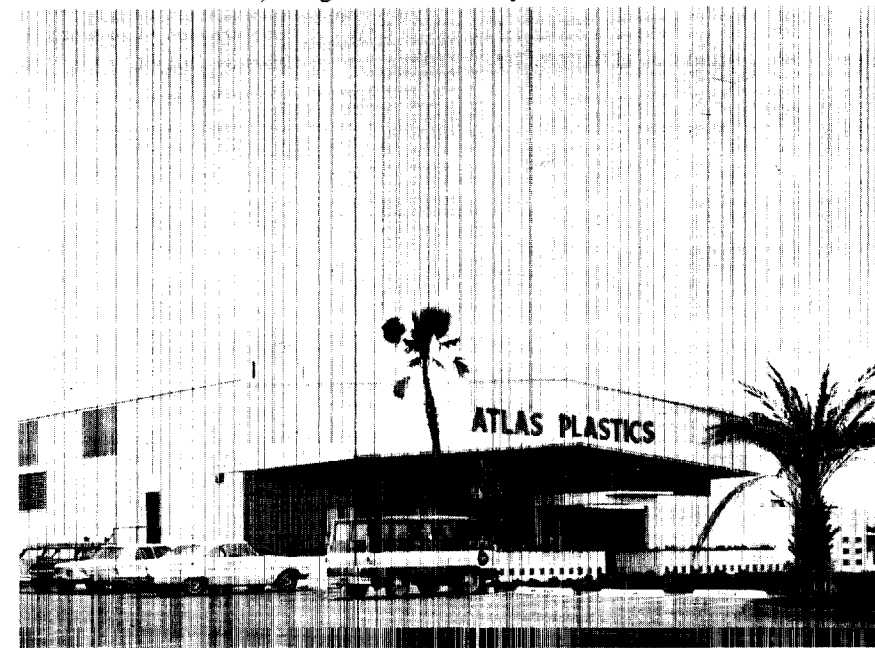
But the pride of Salton City today is the first industry to choose Salton City for its home. Atlas Plastics Corporation, one of the largest producers of sheet plastic in the world, saw the advantages that the dry climate and the desert had to offer. Because of these advantages, they built a \$525,000 plant of 18,000 square feet, near Salton City's airport.

The company has two extrusion presses and employs many full time employees. Atlas ships the plastic sheets to customers and distributors. The raw sheet material finds its way into many different forms, such as luggage, refrigerator and freezer interiors, aircraft panel parts, and even interior parts of space vehicles.

One of the anticipated factors of growth in Salton City is the fact that State Highway 86 has top priority on the California State Highway agenda and will soon be an expressway all the way to the Mexican border. This highway will also reduce the driving time to Salton City from Los Angeles by approximately 50 minutes.

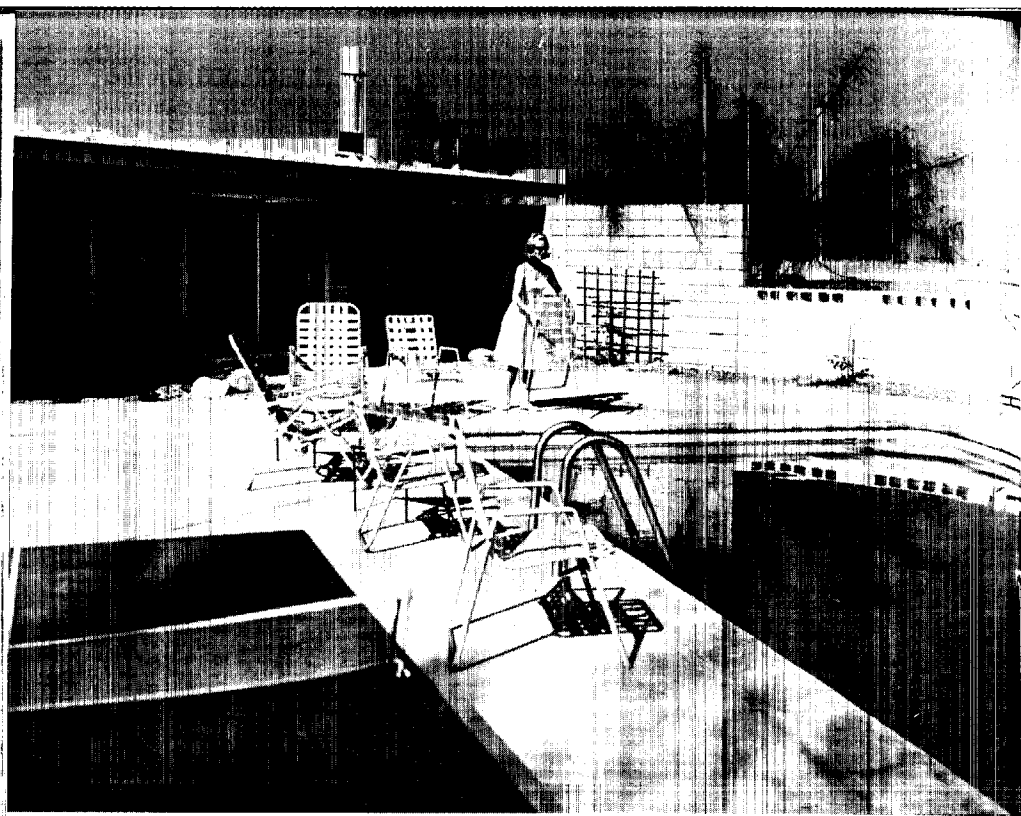
Joining Highway 86 will be the new Anza Borrego Highway, right in Salton City. This will create an important junction, opening a new and fascinating desert region. Anza Borrego is California's largest state park, comprising of nearly 460,000 acres of spectacular desert land in which elevations rise from near sea level to over 6000 feet.

With Salton City as the entrance to this vast new vacation area, as well as its own attractions, the growth of the city seems assured.



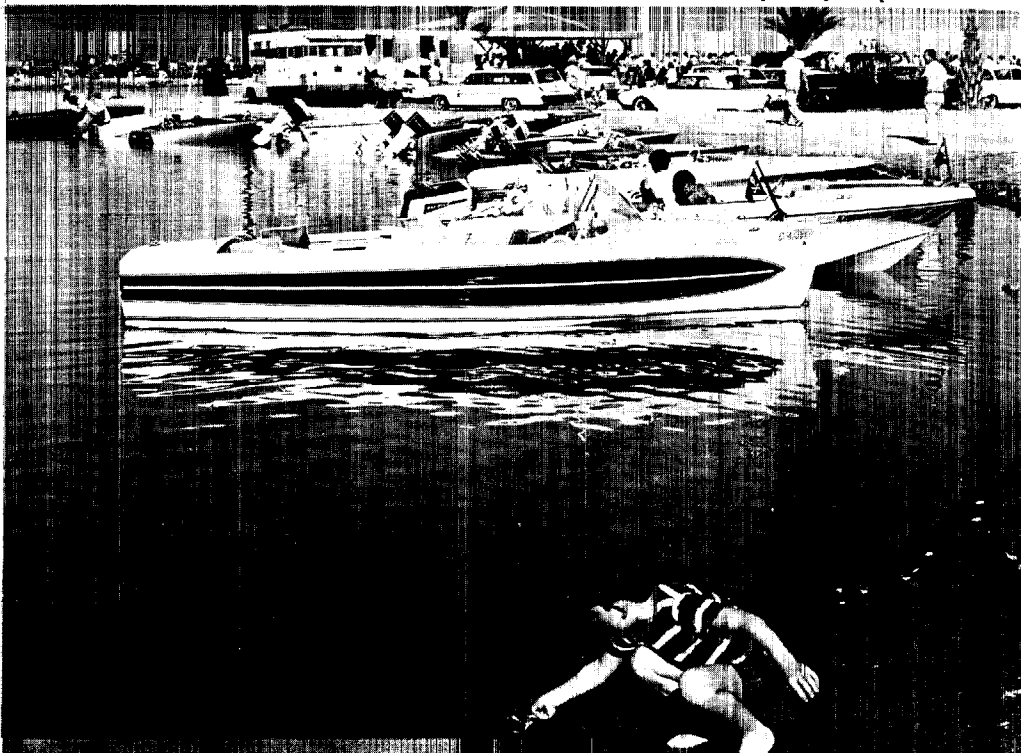
Salton City's First Industrial Plant — Atlas Plastic Corporation.

Courtesy Holly Corporation



**Desert Living at Its Finest is Stressed at Salton City.
Busy Sunday Afternoon at Salton Bay.**

*Courtesy Holly Corporation
Courtesy Holly Corporation*

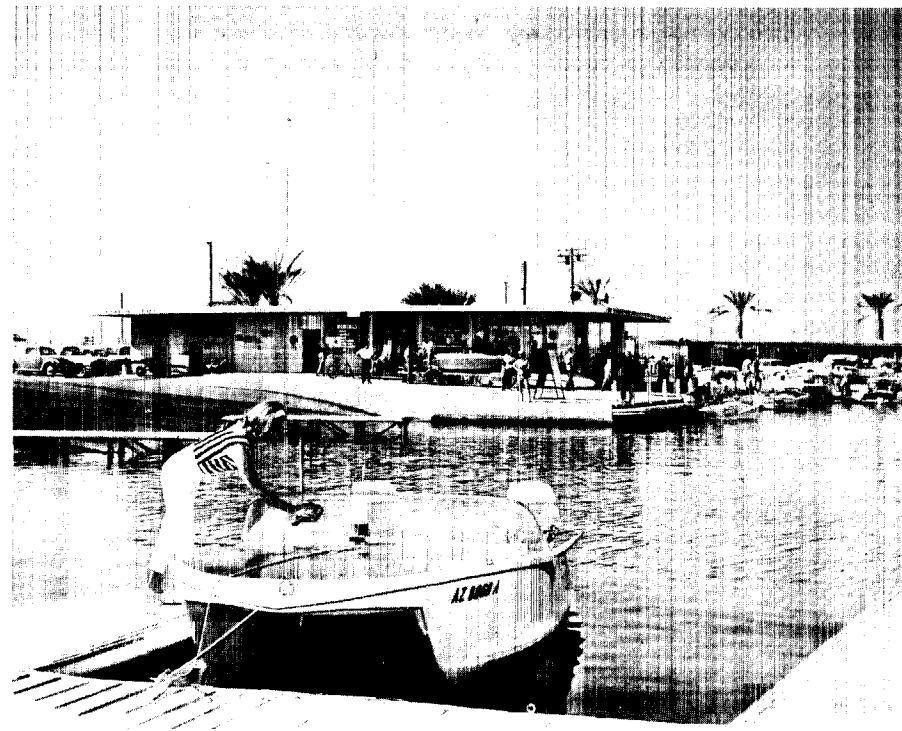


Relaxing on the Rocks.

Courtesy Holly Corporation

Salton Bay Marina.

Courtesy Holly Corporation



North of Salton City, at Salton Sea Beach, growth has also been spurred by the building of a new marina — Salton Sea Beach Marina by Jorgenson and Brown, developers. They are also owners and developers of Salton Sea Beach Estates, specializing in lots for mobile homes, trailers or recreation homes.

Helen's Beach House is located here, one of the earliest restaurants in the Salton Sea area. Helen Burns, the owner, who has been active in Salton Sea civic affairs, is publisher of the area's first newspaper — The Salton Seafarer. She is also author of "The Salton Sea Story", a history of the area.

Desert Shores, a few miles north, gained new life in 1958 when James C. and Boyd F. Thomas began their tremendous project of rebuilding the entire shore. In order to give waterfront lots to their mobile home rentals, and the real estate development which they owned, they constructed eleven huge 196 foot fingers out into the sea and one 2000 foot finger.

This monumental task gave Desert Shores, 13 miles of shoreline. Today, with the completion of the Desert Shores Yacht Club and the Marina Mobile Estates, the fingers are filled with luxurious mobile homes, with their own boat docks. Many new waterfront homes are being built. The Thomas brothers' dream has become a reality. The cost of this project was over \$2,500,000 and is a great asset to the Salton Sea.

On the north shore of Salton Sea, in 1958 the North Shore Beach Estates development was begun by Ray Ryan. This area has proven very popular and the community has shown a steady growth.

One of the major factors in the success of this development was the building of the yacht club and marina.

North Shore Beach and Yacht Club on Highway 111, is one of the most beautiful landmarks on the Salton Sea. It is the only yacht club on the northeast side of the sea, and is a favorite spot of many southern California boaters.

The club is a monument to the dreams and hard work of the popular Travis Rogers, owner. "Trav", as he is known to his many friends was connected with the Ranch Club in Palm Springs for many years, when he conceived the idea of an inland yacht club on the Salton Sea. He did an excellent job in planning and building the club and marina. The beauty of the palm-shaded club, especially at night when the lights make it a jewel on the Sea, never fails to arouse the admiration of visitors to North Shore.

Operated in conjunction with the club, but not part of, is the North Shore Marinas, Inc. and the North Shore Motel, both of which are open to the public.

The community of North Shore, which now has its own postoffice, will undoubtedly continue to grow and expand, since it has much to offer those seeking homes in the desert.

Just off of Highway 111, South of Thermal, is the little town of Mecca. In our earlier history, its mention in the formation of the Salton Sea and early settlement, denotes its important place in the past. One of the oldest buildings in the area, which until recently was Leon's Market, still stands. Although progress has changed the sleepy little village, with the building of a new supermarket, the spirit of the past still remains. Old palms in the center of town provide a park like atmosphere.

North Shore Beach Yacht Club and Marina.

Photo by Johnson



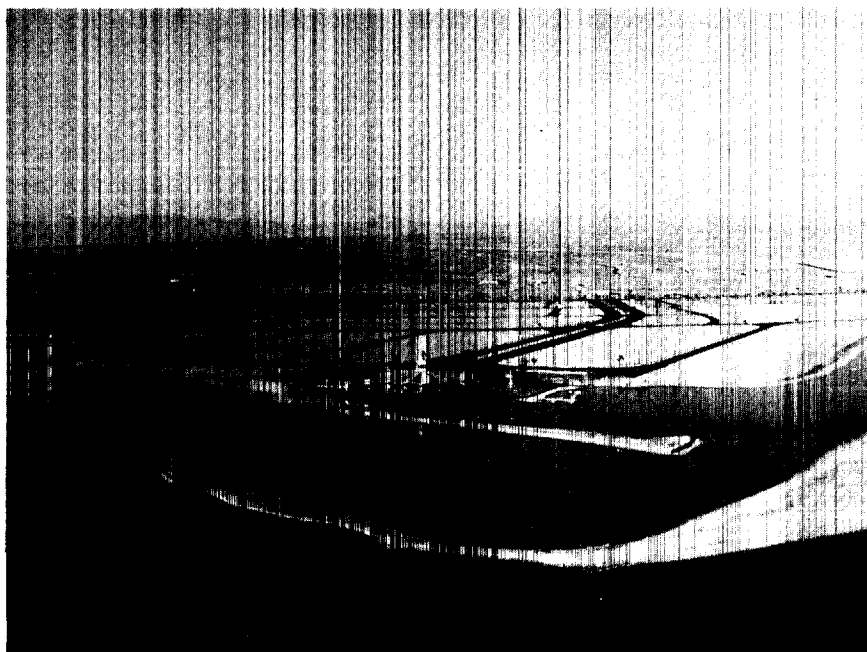
Today, Mecca is a farming community, and although it is only a few hundred yards off the highway, many Salton Sea visitors have not seen it. Because of its closeness to the sea, there is no doubt that Mecca, too, will grow and expand.



Sun Bathing and Swimming are Popular at the Salton Sea.

Salton Bay Yacht Club.

Courtesy Holly Corporation



A Tour Around The Salton Sea

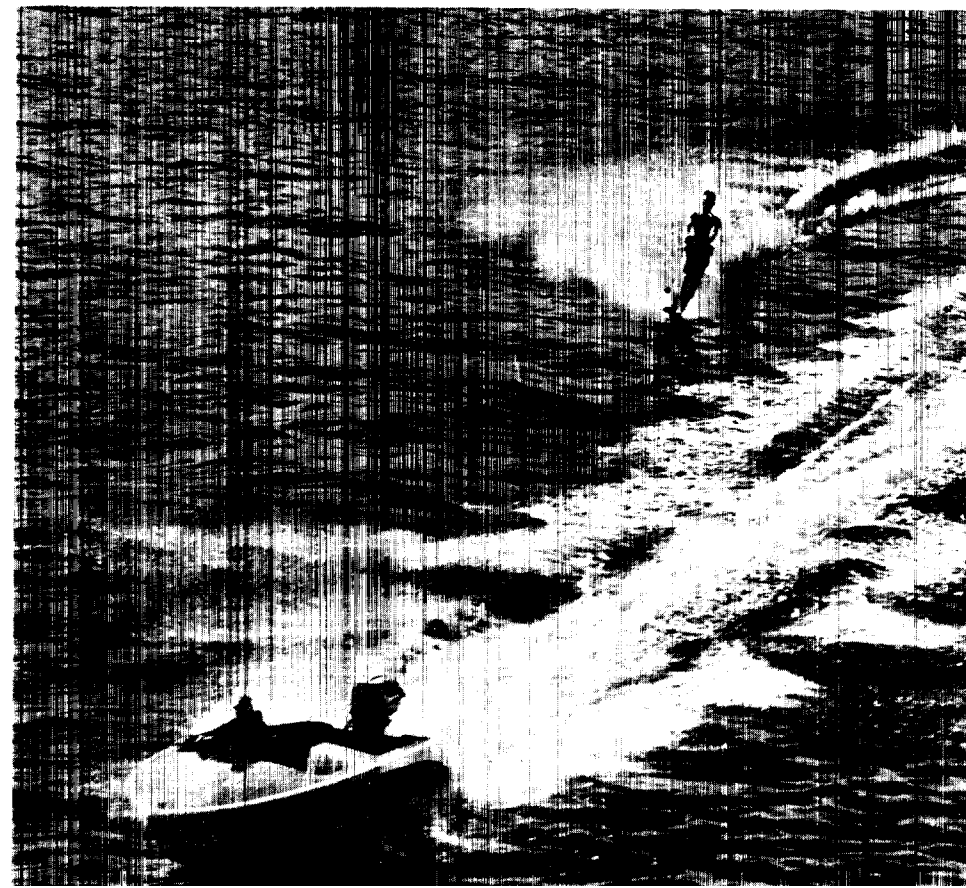


Leaving Indio on Highway 111, we pass through the towns of Coachella and Thermal on the way to The Salton Sea.

The first stop at the northern tip of the Salton Sea is Whitewater Cove. The turnoff on the right side of the highway is well marked by an Imperial County sign. It is only a few miles to the Cove where a trailer park is maintained and supplies are available. The channel is protected. This is where the Whitewater River enters the Salton Sea.

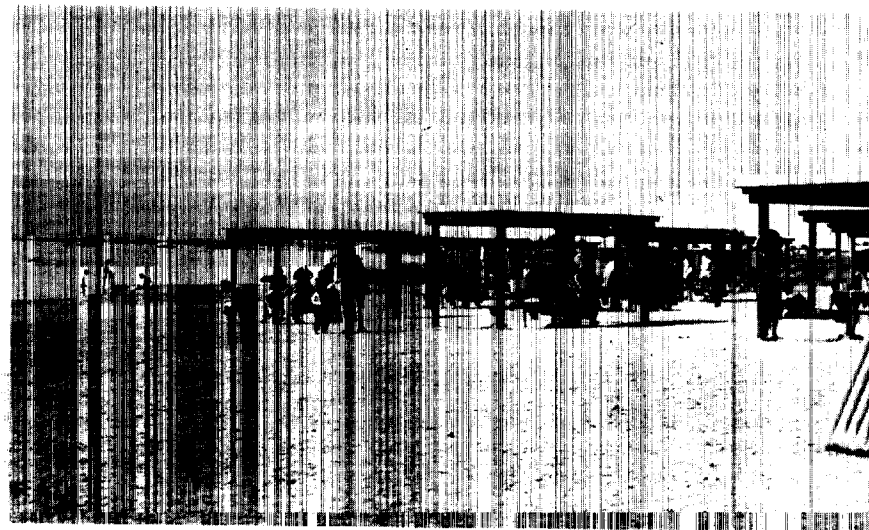
Back again on the highway we continue a short distance until we reach the area known as North Shore. Here are located the popular North Shore Yacht Club and North Shore Marina as well as the North Shore Motel and Trailer Park. All fine facilities. The area is quite complete with restaurants and markets. A riding stable is located here for those who like to ride in the back country.

The marina has an electric boat hoist, concrete launching ramp, boat rentals, marine hardware, wet and dry storage, as well as a snack bar, sporting goods and live bait.



About two miles past this area is the Salton Sea State Park, comprised of 16,364 acres along the shoreline. Launching ramps, campgrounds and a new and modern concession and modern sanitary facilities are available. The charges are nominal. Across the road from the entrance to the State Park is a private trailer park and boat-storage for those who wish to leave their boats or trailers in storage during those times when they must leave the seashore.

Mecca Beach is located about one and a half miles southeast on highway 111. This is also a State campground, not as well developed as the area north, but containing a snack bar, modern restrooms and campsites as well as water, bait and groceries.



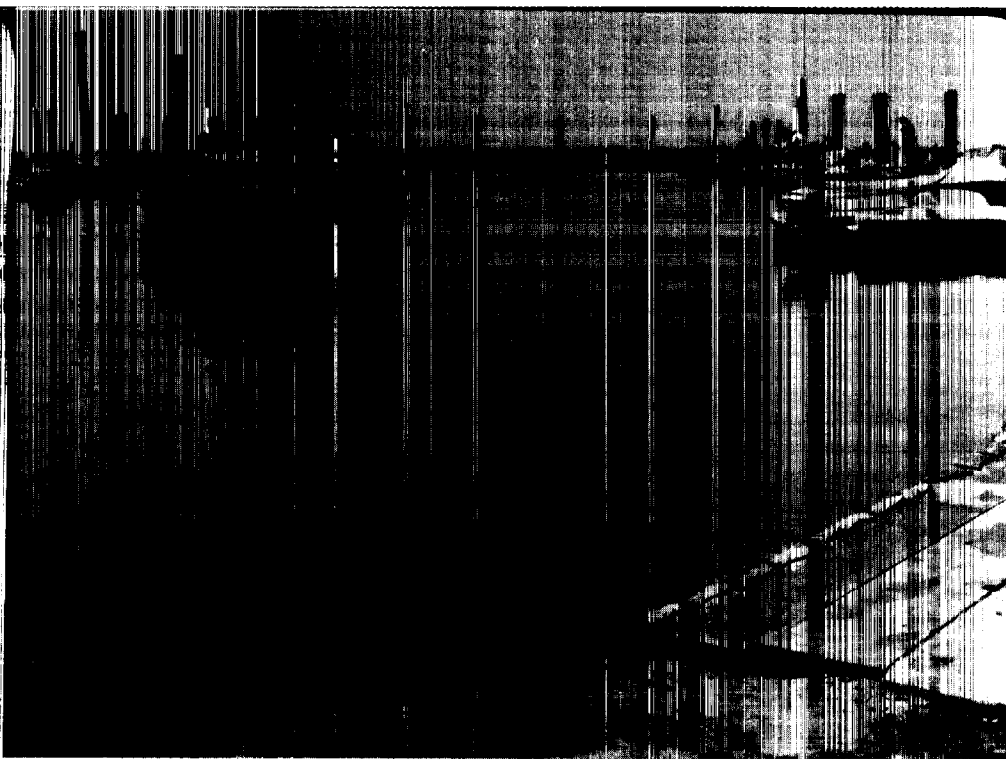
Salton Sea State Park.
Enjoying Sun Near Bombay Beach.



Mecca Beach.

Old Picture of Desert Palm Beach, Formerly Located Just North of Salton Sea Park Headquarters.





Bombay Boat Marina at Bombay Beach.

View Over Northern End of Salton Sea, With Rain Storm in the Distance.
California Department of Fish and Game Photo

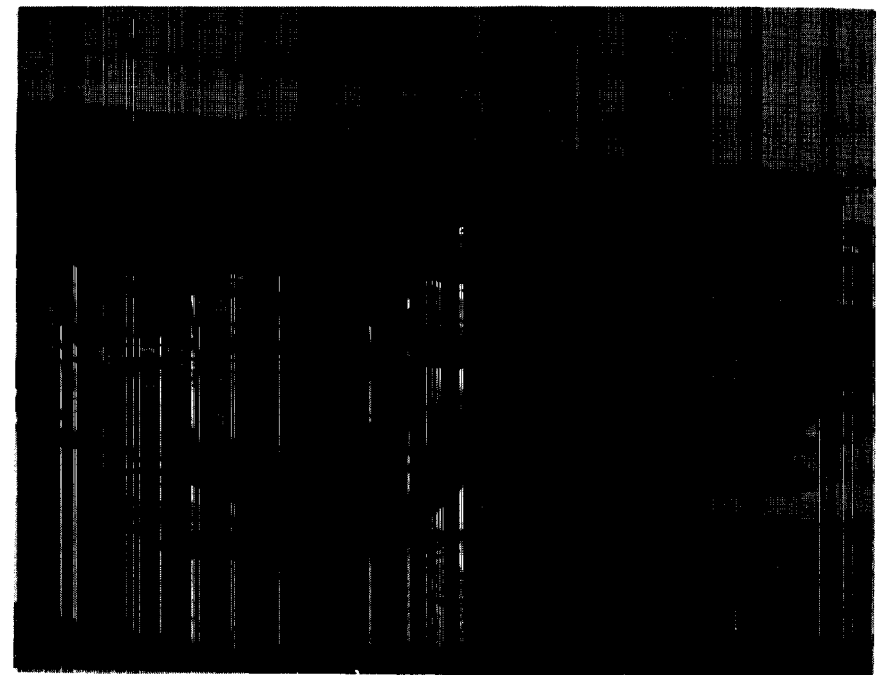


About fourteen miles from Mecca Beach campground on the shores of Salton Sea is Bombay Beach. The turnoff is also well marked on the right side of the highway. This is a small community on the Sea, of about four hundred beach homes along with a considerable number of permanent residence in mobile homes. Bombay Beach is a private community and is growing as development is always under way. It is a very popular spot with the fishermen. Launching ramps, fishing from piers, docks, bait and tackle shops, grocery store, restaurants and lounges are all part of this expanding beach town. The sportsmen find this an ideal spot and it is an excellent fishing area.

Returning to Highway 111 we turn right towards Niland, not forgetting to keep a sharp lookout on the left side of the roadway for the mineral spas. The popularity of the Salton Sea area is ever-increasing. The fishing, boating, hunting, camping and water sports that motivate thousands to visit the area each year and keeps many there as permanent residents who fall in love with the climate are part, but not the whole story. Not yet as familiar are the increasingly popular hot mineral spas that nestle just a few miles offshore in the foothills of the mountains on the north side of the Sea. These veritable fountains of youth offer comfort and health-giving properties to the bathers. Senior citizens find the relief from the sufferings of arthritis and rheumatism, well worth the trip to the area. Trailer colonies at the spas are growing steadily.

The government owned the property originally, and the first spa was tapped accidentally during the construction of the Coachella Canal. There

Enjoying the Whirlpool Bath at the Fountain of Youth Spa near Bombay Beach.



were so many government restrictions on the land, that no one could afford to develop it. At that time, those people wanting to enjoy the hot waters did so, even though the land was posted. Times change, private interest and government have finally been able to see eye-to-eye, and development of the area has begun. Modern facilities provided, the thousands of campers and trailerites have made it a haven of rest and comfort. Wells have been drilled, whirlpool baths installed, modern sanitary facilities, grocery stores and the other little things that make life worth living.

Before the white man came the Cahuilla Indians were great bathers and enjoyed the mineral hot springs. The value of the hot baths were well known to the Indians and medicine men, who knew mother nature's healing qualities.

Eight miles south of Bombay Beach is the Niland Marina. The marina was constructed by the California Wildlife Conservation Board and turned over to the county of Imperial who lease the premises to a concessionaire. Grocery store, ice, bait and tackle and refreshments are available as well as camping and a free boat ramp.

The Imperial Waterfowl Management Area is located along the southerly end of the Salton Sea, Imperial County. It is just south of the Niland Marina. The area is regarded as such an excellent hunting grounds because much work and care has been taken to make it so. The California Department of Fish and Game, Waterfowl Management Agency has provided a waterfowl feeding area to prevent the depredation of crops — and also provides public hunting and recreation. The area is divided into two units. Unit A, is the Wister Unit (including the Wister and Hazard Shooting Areas) is reached by proceeding seven miles northwest of Niland on State

Fishing from boat or shore is equally popular at Bombay Beach.



Highway 111 or watch for the turnoff sign on the right side of the highway when traveling south from Niland Marina.

There is about 2,300 acres in ponds and 1,200 acres in fields open to hunting. The Area manager may designate certain fields primarily for goose hunting where goose decoys may be required.

DAILY SHOOTER CAPACITY: 150 for the first half of the season, 200 for the second half of the season. The checking station is open at 3:00 a.m.

Reservations must be presented at the checking station by one and a half hours before shooting time. First-come, first-served permits issued at checking station on shooting day. Fee: \$3.50 per shooter sixteen years of age or over. Blinds: none. Boats: not allowed. Dogs: allowed. Camping: limited camping in the parking area adjacent to the checking station.

The Ramer Unit (including Ramer and Finney Lakes) is three miles south of Calipatria. Calipatria is just a few miles south of Niland on highway 111. The driveway is at the north end of the Alamo River Bridge.

DAILY SHOOTER CAPACITY: Hunting on Ramer and Finney Lakes allowed from boats only. A total of 60 hunters is allowed jointly between the two lakes. Permits are required and issued on first-come, first-served basis at checking at Ramer Lake. No fee . . . no blinds . . . boats required. Dogs allowed. Camping allowed at designated area at Finney Lake.



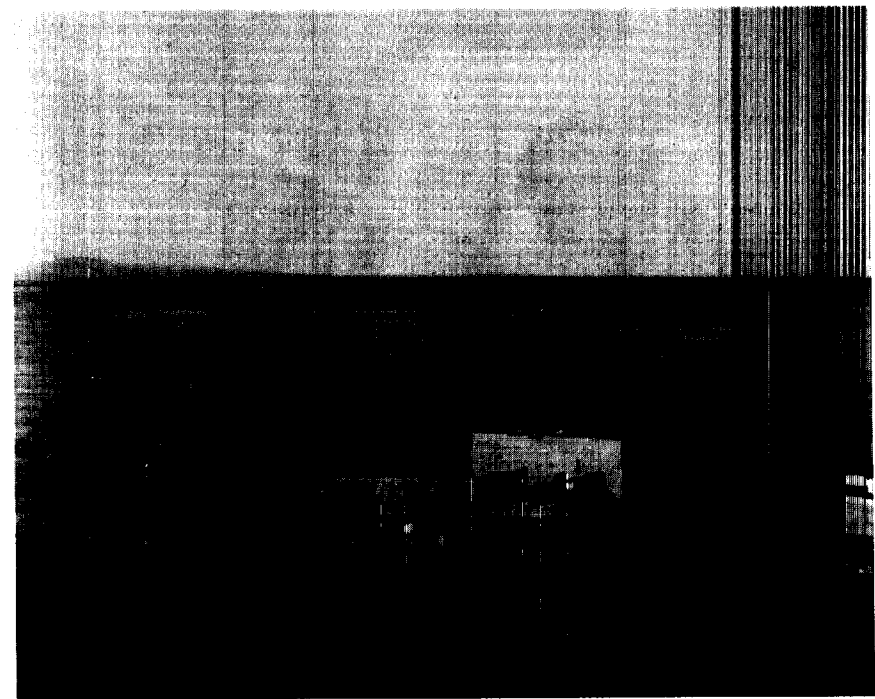


Canadian Honkers and Snow Goose Shot Near Red Hill.

These two areas are indeed the best hunting areas in Southern California. It is the prime refuge of the Great Basin Canada Goose, for here are found the Canada Geese, white fronted geese and snow geese. There is an occasional mallard, but mostly pintails, green winged teal, widgeon, cinnamon teal and shovelers. For the bird hunter it isn't a matter of luck, just good shooting.

The city of Niland is the southern gateway to the Salton Sea and the northern gateway to the Imperial Valley. Niland is the headquarters for the thousands of hunters that go to the Imperial Valley during the bird seasons and also during the deer and rabbit season. Doves, quail, pheasant, ducks and geese are found under natural conditions. This area is southern California's paradise for the hunter.

Niland is also close enough to the Salton Sea to be convenient. Southwest of Niland at the southern end of the Sea is located the Red Hill Marina. Besides being an ideal spot for the fishermen, the hunters also find this an area that must be seen to be believed. The feeding grounds along the shores in this area make it a prime hunting ground. Many hunters use the Red Hill campgrounds and in the mornings and evenings hunt the areas of shallow water. At this end of the Salton Sea there are no water sports allowed and the fish have the water to themselves, as well as do the ducks and geese.



Abandoned Buildings on Mullet Island.

Mullet Island, reached by boat from Red Hill Marina, was originally an arm of land extending from the south end of the Sea. Years ago the bubbling mud pots were a main attraction in this area but have since been covered with water. Bubbles rising to the surface can be seen occasionally. Like sentinels on eternal duty the row of power poles protruding from the water mark the path from the island to the mainland where the road now lies submerged. The waters between the island and the shore are dangerous for the boater, due to the many submerged buildings, and care must be taken when approaching the Island. This is another good fishing spot. Many a good sized corvina has been taken off the rocks of Mullet Island.

Near Niland and a few miles north of Calipatria, the first geo-thermal well was brought in on January 1, 1964. This 8100 foot well sent brine and steam rushing to the surface, only two and a half months after drilling operations began. The earth for miles around rumbled on this occasion. The prime objective of this well and others that were drilled in the area, was to explore the potential of these incipient steam geysers to provide and generate electricity to industry throughout southern California.

According to scientists who have studied the area, the Imperial Valley has one of the largest geo-thermal potentials in the world. Natural steam well areas include Italy, where the world's first geo-thermal well produced steam to operate 9,000 kilowatt generators as early as 1916. In New Zealand, huge generators are used to operate large pulp paper mills. Nearer to home, in Sonoma County, northern California, there are 500 kilowatt steam generators operating.



Cleaning His Limit, Caught Near Red Hill Marina.

Steam wells can be drilled in regions where the magma — or molten mass — which is ordinarily deep within the earth, is close to the surface. Where this occurs, steam formed from the water in the magma is emitted through the underground fissures. Additional steam is formed when surface waters that circulate deeply come in contact with the heated rock.

One of the companies drilling geo-thermal wells, describes the development of the geo-thermal areas thus:

"In times past, a great oozing mass of magma — which is molten rock, rose in a dome-like structure close to the surface, and what vents there were became plugged with hardening obsidian. These plugged vents has kept a vast store of heat close to the surface.

"In the Imperial Valley there are perhaps 25 square miles of high temperature porous rock associated with an underground sea of very hot brine which must be a source of heat deep in the earth.

"Preliminary evidence suggests that the brine may be a mixture of magmatic water (water released as the molten magma cools) and an active ore solution containing untold tonnages of mineral salts and metals, including copper, manganese, lithium and silver".

When the energy of these wells is utilized, it could furnish enough power to support a community of many thousands of people, millions of kilowatt hours to run factories and mills and thereby create within the region bound-

ing the Salton Sea a fantastic and prosperous economy. The whole southland will benefit, but the Salton Sea area will be the hub of this amazing development that the future is sure to bring.

There are those who say that within a few years or so the brine content of the Salton Sea will be so great that no marine life will be able to survive in it. The salt content does fluctuate due to the run-off and drainage from the canals. However, with man's determination to control the sea, he was able to succeed. It seems hard to believe that the problem of keeping the salt at an optimum level will not eventually be solved. Even now, many men of science and learning are considering the problem and methods of solving it. With the millions of dollars of income from the area, due to the Salton Sea, there is little reason to doubt that it will not remain California's jewel of the desert.

Continuing on our tour to Brawley where Highway 86 meets Highway 111, a right turn and a few miles brings us to Westmoreland, another headquarters for the hunter and fisherman. There are good motels here and hunting and fishing supplies are always available. It is good bird country also.

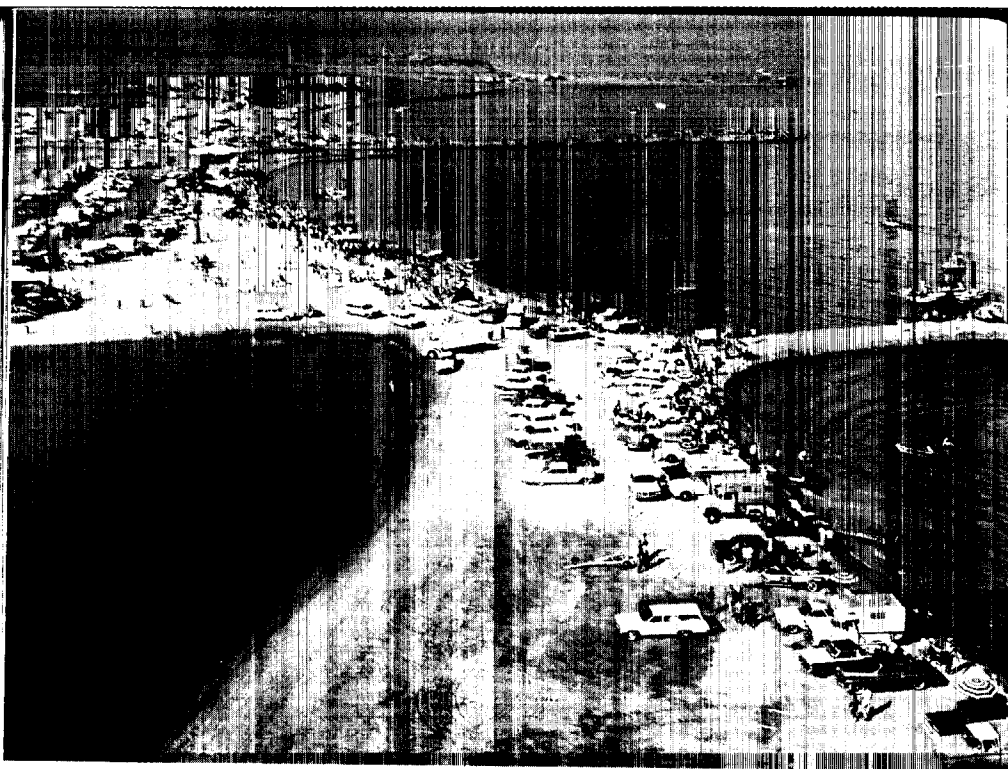
The Westmoreland Volunteer Firemen's Association operates Benson's Landing, a few miles north of Westmoreland. This is off Highway 86. This is also a very good fishing area. There is a launching ramp, boat and motor rentals, bait and fuel.

North of Benson Landing on Highway 86 is the United States Navy Salton Sea Test Base. This is a restricted area but the Navy allows visitors to use and enjoy the water portion of the restricted area except when naval operations are being conducted. Naval patrol boats clear the area when this occurs and those in the area are asked to cooperate. There are only a few regulations, but these are strictly enforced. No boats are permitted within 300 feet of the shoreline at any point designated as the restricted area. No boat tie-ups to any facility, including docks, targets and buoys of any type. Boaters are asked to remain east of the seaplane mooring buoys that are located adjacent to the end of the Navy pier.

PLEASE NOTE:

There are nine sea lane buoys located about two miles directly out from the Navy pier. These buoys are unlighted, and present a hazard to navigation to boaters at night.

The radar target located about two miles north of the pier, is also unlighted.

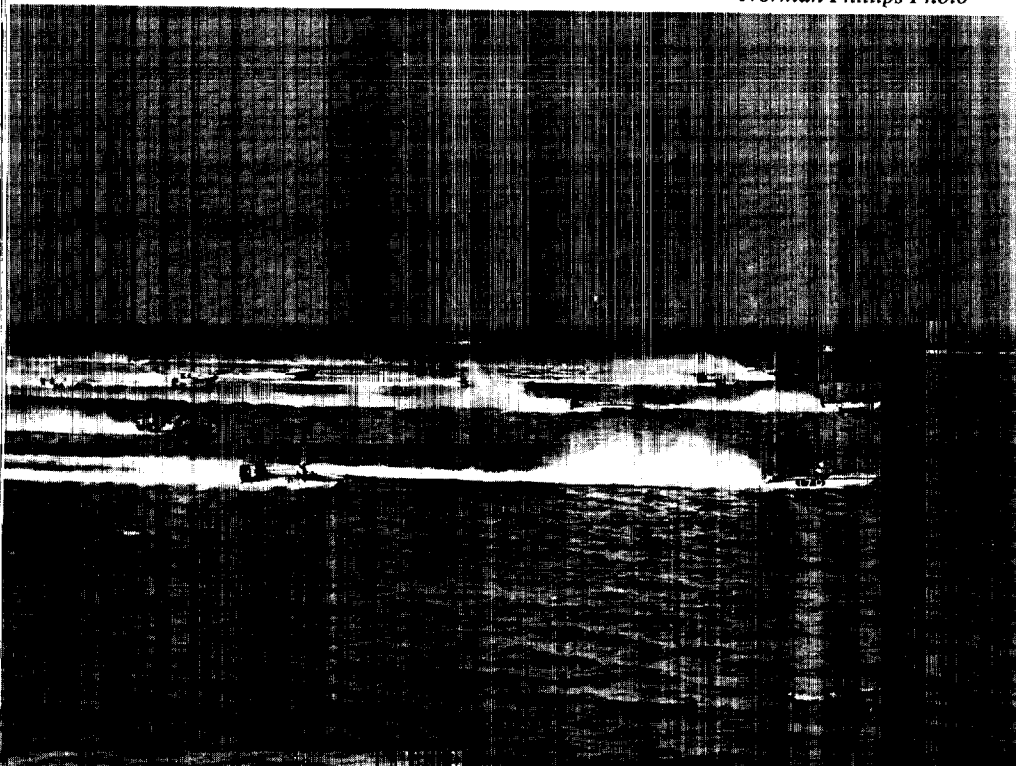


Salton Bay Marinas During the Salton Sea 500.

Courtesy Holly Corporation

The Salton Sea 500.

Norman Phillips Photo



Salton City, the next stop going north on Highway 86, the growing city that boasts the most modern facilities. Plans for this development include all of the civil and educational structures that are required to provide the citizens with the upmost in convenience. Salton Bay Marina, located on the shores of the Salton Sea has everything that is to be desired. Protected harbor, concrete ramps, complete marine service, slip storage, dry storage and boat mooring. Fuel pumps, boat rentals, restaurant and snack bar. Here also is located the Salton Bay Yacht Club and it is in this area that the Salton Sea 500 mile race is held each November.

What started out as a promotion idea to interest the outside world in what the area around Salton City has to offer turned out to be one of the major sporting events of the year. The Salton City 500 Mile Championship Boat Race held every year since 1961 during the month of November is one of the nation's largest and most spectacular motor boating events. When the weather is just right, and it usually is, crowds up to 60,000 persons line the beaches and stands to cheer their favorites across the finish line.

The prize money, well over \$20,000 also helps to draw many of the top-drawer racing drivers from every part of the nation. Among them are quite a few who have their own corner on fame at the Indianapolis Speedway. Always in evidence are some of the top sports writers of the nations presses, there to make certain that the whole sporting world gets the facts, the action, and the results.

It requires a small fortune to race in Indianapolis but at Salton City if you have a boat that you think will win it, you're in, if you qualify. Local boy makes good is a trite expression, and in this case quite true, for Rudy
Crowd Watching the Salton Sea 500 at Salton City.

Norman Phillips Photo





Aerial View of Salton Sea Beach.

Photo by B. A. Lang, Sr.

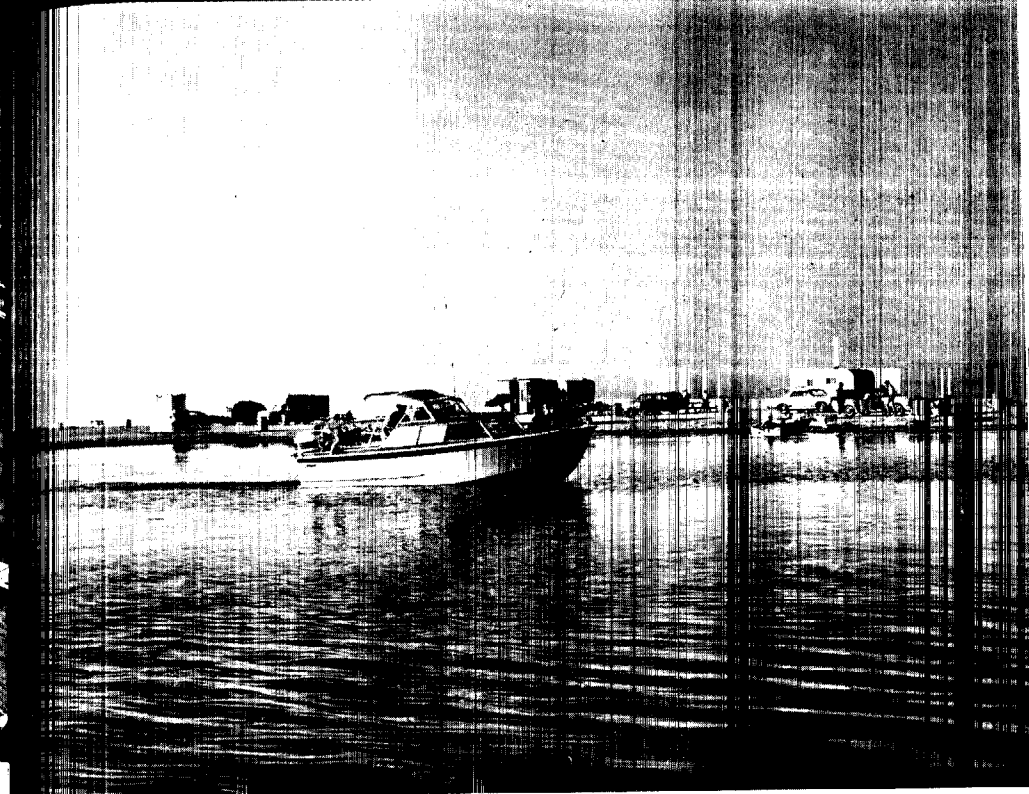
Ramos, Gardena boat builder has been the winner of this grueling marathon three times. In the same races that he has won, he has had other boats of his own design come in the money. It is a race worth seeing.

Located on the waterfront at Salton City is the Riviera Trailer Park, which offers modern facilities to travel trailers as well as mobil homes.

Further north is Salton Sea Beach. Another growing community that finds a pleasant place in the sun. All facilities are provided for the fisherman and this spot grows in popularity as each year passes.

Desert Shores is located north of Salton Sea Beach, 24 miles south of Indio and the last stop on the western side of the Salton Sea going north. Here are located the Desert Shores Trailer Park and Boat Marina and the Marina Mobile Estates. The word is luxury in waterfront living and all facilities for the good life are available. Fisherman's Wharf at Desert Shores has a protected landing ramp and all facilities for the sportsman. Here also is the Desert Shores Yacht Club with sling hoists and protected mooring.

Leaving Desert Shores and turning right toward Indio you will pass, on your left, a landmark called Travertine Rock. This huge pile of rock has a history of its own, and the deposits of Travertine, or calcium carbonate as it is called, attests to the fact that this landmark was once, and for a great period of time, submerged in fresh water. It is about a mile or so west of the present shore of Salton Sea, and it takes but little imagination to visualize the size of the body of water that was there. Travertine Rock is a local attraction, worth the time it takes to look closely and take a few pictures. It is also known as Travertine Point.



Beach at the Salton Sea.

Aerial View of Desert Shores, California.

Photo by B. A. Lang, Sr.





Date Gardens Near Indio.
Gillman Studio Photo



When the visitor faces Mecca, if he is in California . . . he is in the famous Coachella Valley where the date palm, standing stately row after row, reminds one that in this fertile land grows one of the oldest cultivated tree crops known to mankind. Although the date palm is one of the most expensive to raise and care for, the results of those dedicated growers who have spent years and fortunes improving the quality of the dates grown in the Coachella Valley have resulted in the finest, most delicious dates grown in all the world. The modern and sanitary methods devised by the date industry in the United States have resulted in producing dates that far exceed the quality of those grown in the old world, from where our original date-palm offshoots came from.

The story of the date industry in the Coachella Valley is an interesting one.

"The first date palms in the United States were grown from seeds planted by Franciscan and Jesuit missionaries who began founding their missions in California in 1769. A few of these original palms are still in existence, but they are seldom more than striking landmarks, for the damp coastal climate is not suitable and the seedling varieties were poor. In the settlement of the West following the Civil War, many date seeds were planted, and, as a number began fruiting in favorable climes, commercial plantings were considered.

"Although a number of large seedling date gardens were planted, none were successful. In any large group of seedlings only about one-half of the palms are female and produce fruit. Then, too, the fruit seldom resembles that of the female parent tree and is usually inferior. Therefore, in 1890, the U.S. Department of Agriculture arranged for 68 offshoots (the so-called "suckers" which grow out around the base of the tree and produce fruit identical to that of the parent tree) to be imported from Egypt and Algeria. From time to time, thereafter, more offshoots were obtained and propagated at the U.S.D.A. Experiment Stations then released to private growers, and commercial date growing — once an Old World exclusive, was shared by the New. Most of the early importations were of the readily available Deglet Noor variety from Algeria, and that today is the most common commercial variety in the United States. More recently, some of the choice and delicate dates of other areas became available in small quantity and they are now tempting the palate of U.S. buyers. Since many Near East areas jealously guard their best palms it has been difficult to obtain some of the best varieties. 1955 fighting in French North Africa has made us realize again how daring some of the early plant explorers were who went into remote oases to bargain with desert chieftains for a few choice date palms for us.

"Date growing today, in warm, fertile Coachella Valley is a far cry from the primitive industry still pursued in much of the Old World. Coachella Valley growers have borrowed the "harem" idea, however, and each acre of 48 female palms has one male presiding over it. This arrangement is necessary because of a peculiar characteristic of the date palm. Each female blossom must be pollinated by hand. Although there is some wind pollination, this is too uncertain a process, both here and in the Old World, where the food supply of millions is involved. Each year the cultivator climbs the male tree and collects the flower spaths and ties a sprig of the male blossoms in each of the female flower bunches. In Coachella Valley, the flowers begin appearing in March and the ripe fruit is picked in late September through December. Date palms are intensively irrigated — 10 to 20 acre feet are used annually and in many varieties, the ripening fruit bunches must be covered with large paper bags to protect them from rain, dust, birds and insects.

"Date picking is no small problem either, in an area where high standards must be maintained. Each palm is picked four to six times, as the fruit ripens, and, since U.S. trees are sometimes 80 to 100 feet high, various picking devices have been developed. Such things as mobile steel towers with catwalks for pickers, extension ladders, and date picking saddles. After picking, dates are immediately taken to modern packing plants where they

One of the Many Date Shops in the Coachella Valley.



are weighed, checked by government inspectors, fumigated, cleaned and graded to size. They are then packed and refrigerated, ready to go to market. Throughout the whole operation rigid U.S. Department of Agriculture standards are maintained."

The date is a sacred institution to the Arab and consecrated to Mohammed. "There is", said the Prophet, "among the trees, one tree which is blessed; it is the Palm. Honor your uncle, the Palm; I call him your uncle because he was created from the earth left over after the Creation of Adam (on whom be peace and the blessing of God). The Palm resembles man by its erect position and its height, by its separation into two sexes, and by its necessity for pollination of the female. If its head is cut off, it dies; if the heart is exposed to too great a strain, it perishes. Is it not the same with man? If its leaves are cut off, it cannot grow others in the same place — no more than man if he loses his members." (Kamal al Din, in "Life of Plants").

Many men of vision and adventurous spirit contributed to the embryo date industry in the early nineteen hundreds but one of the most well known, and one who was probably best informed at that time was and is, Dr. Paul Popenoe. Dr. Popenoe is founder and president of the American Institute of Family Relations, Los Angeles. His first published book, "Date growing in the Old and New Worlds" came out in 1913, and in it he told of his trips to North Africa and other parts of the Middle East to secure date palm offshoots. The trips into the deserts, the near escapes from death at the hands of the natives, the cooperation of the Sultan of Oman. It is an interesting book and considered a classic on date culture.



Located in the heart of the Coachella Valley, Indio is considered the date capital of the world. A railroad distribution point, the community was established in 1876. Surrounded by date groves, citrus groves and vineyards, the agricultural lands around Indio have the highest average yield of any farm area in America. These lush farmlands and groves are an oasis in the desert mountains surrounding Indio.

Indio is growing so rapidly, with luxury motels, new business and shopping centers that it is difficult to realize that a few short years ago, it was a quiet little farm community. Today, Indio offers the conveniences of the metropolitan areas, in the desert wonderland.

One of Southern California's most glamorous events occurs every February in Indio when the National Date Festival is held. For ten days, the city seems to have been transported from the Coachella Valley to the land of Sinbad the Sailor and the fabled Arabian Nights.

The streets are crowded during the Festival with exotically costumed men, women and children and stately dromedary camels stalk the streets. Inside the grounds of the Date Festival there is every conceivable entertainment from camel and ostrich races to one of the nation's great horse shows, The National Horse Show. An Arabian Nights Pageant, with local and professional performers, is shown every night. It is indeed something that every desert visitor should see.

The National Date Festival was started in 1921 and held the next year, and discontinued until 1938. At that time it was incorporated into the Riverside County Fair, and in 1940 permanent Festival grounds were purchased, and the project has continued to grow in beauty and size.

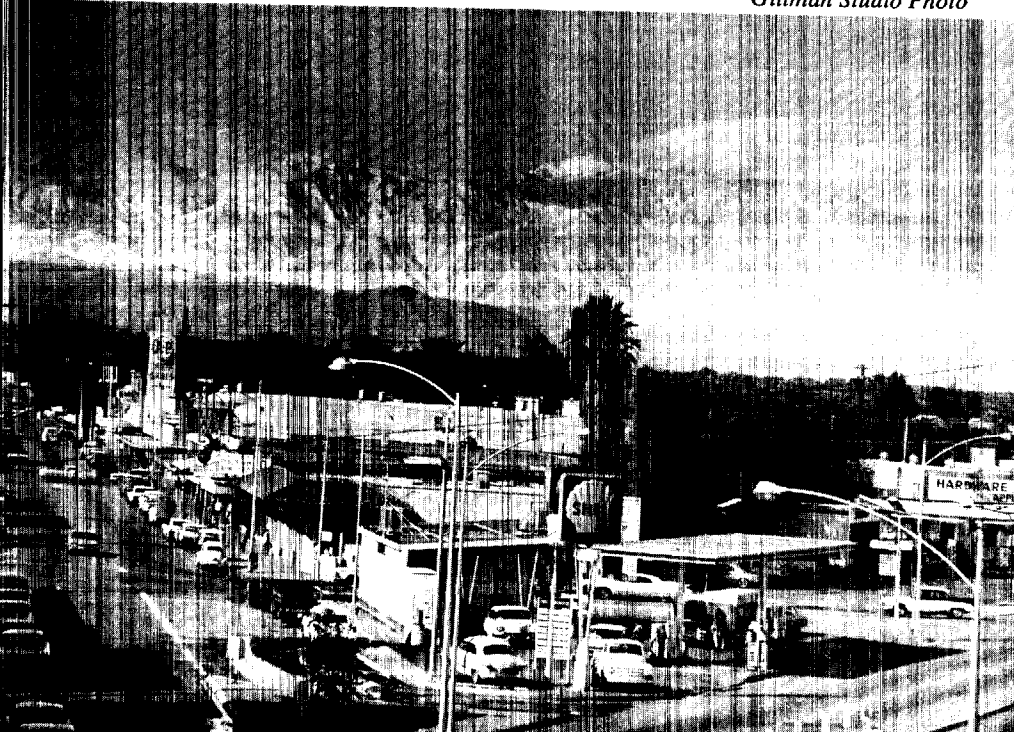
There are many interesting date shops in Indio, and one that features the famous and fascinating film, "Romance and Sex Life of the Date," shown free in the special air-conditioned theatre in the Shields Date Gardens on Highway 111.

Date Festival at Indio.

Gillman Studio Photo

Business District, Indio, California.

Gillman Studio Photo



Coachella, the shipping point for millions of dollars of produce annually, is the center of many date and citrus groves. It is renowned as the site where the first date palm was brought from North Africa and transplanted in 1898. There are many packing houses and shipping sheds, that teem with activity in the winter and spring months when the crops move from this area.

This community, after many years of relative inactivity in building, is also taking on the new look of the modern desert, with new shopping centers, motels and residences.

Thermal, with the distinction of often being the hottest place in the United States, since the Valley's official U.S. Weather reporting station is located here, is a datepacking center. The town also has a large stock feed yard, and meat packing plant.

Natural hot springs located near Thermal, gave the community its name. Many fine pink grapefruit and dates are grown here, and visitors find it interesting to visit the many date packing houses located here.

Going west on Highway 195 from Thermal to Highway 86, you reach Valerie Jean, one of the pioneer date shops in the valley, which was developed by Russ Nicoll.

This area, including 100 Palms and Oasis is developing a business area that promises to become a community development in the near future.

Aerial View of Coachella, California. Gillman Studio Photo



Anza-Borrego State Park



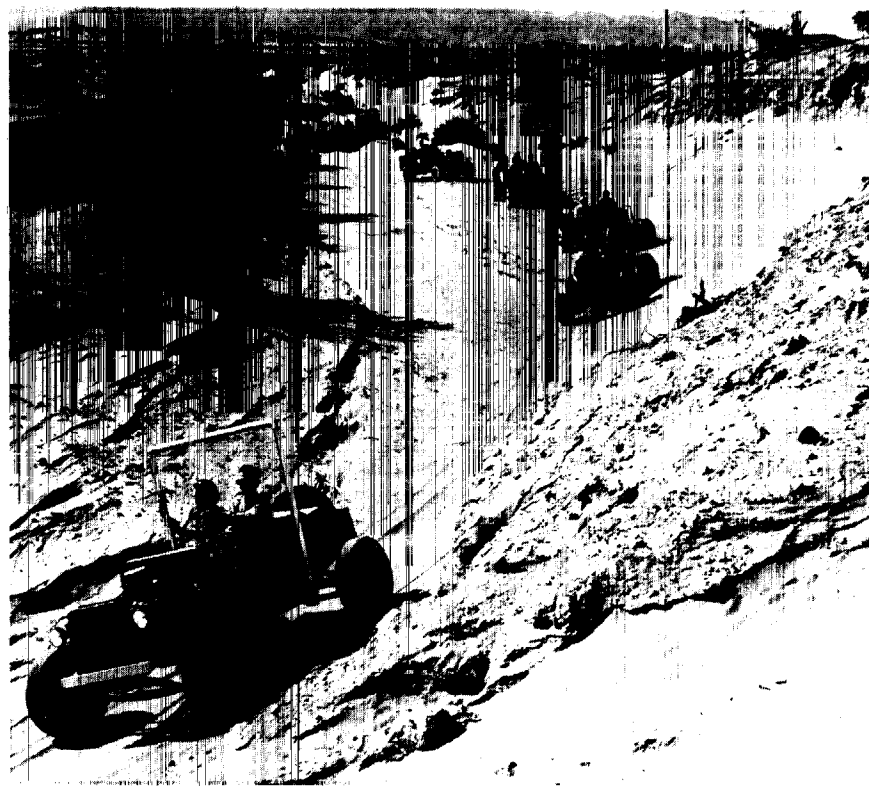
One of the most interesting areas adjacent to the Salton Sea, is Anza-Borrego Desert State Park. California deserts are areas of distinctive beauty and fascination, and about 478,000 acres of desert land is included in the Anza-Borrego Desert State Park. The enchantment of this magnificent area in part depends on spaciousness, solitude, and escape. It is a charm of constantly growing value, as the rest of 27,500,000 acres of desert in California are settled by homesteaders, agricultural enterprises, resort communities and other works of man. It is the policy of the State Park Commission to maintain the desert in its natural state, realizing that the values that create the distinction and the charm of this wilderness are too easily destroyed by any change.

Visitors to the remote areas of the park may be rewarded by a glimpse of the few remaining Desert Bighorn Sheep, a species which needs miles of open, rugged range for survival, as is available here. A varied flora of over 500 species includes cacti, ocotillo, palms, century plants, many shrubs with spectacular flowers in season; and now and then gaudy displays of annuals which splotch color across the desert dunes. Birds, mammals and reptiles live among the desert plants, and afford never-ending pleasure of observation.

Elevations in the park rise from near sea level to over 6,000 feet in the San Ysidro Mountains. Scenic hills, eroded into fantastic shapes by wind and rain, rise from former sea bottom and rugged mountains of granite are speckled with pinyon and juniper trees. Alluvial fans bajadas show where the debris of centuries has washed down from the mountains. Dry arroyos meander through eroded clay hills in the Badlands areas of the park and afford routes into some of the remote places.

Early explorers such as Anza, Fages, Arguello and later Kit Carson and Warner, opened early trails across these desert areas in which the Cahuilla, Diegueno, and Kamia Indians made their homes. Juan Batista de Anza's famous expedition of 1775, en route to San Francisco from Sonora, camped at three locations in the park, following the edge of Borrego Badlands, across the valley, and up Coyote Creek. Other explorers traversed other portions of the park.

Box Canyon, now a historical monument, became a famous pass on the Southern Emigrant Trail. The route followed Vallecito from Carrizo Wash, through Box Canyon, and up San Felipe Valley. General Kearney and his men, led by Kit Carson, went through in 1846, a few days before the battle of San Pasqual. Colonel Cook led the Mormon Battalion to California over the route in 1847. Emigrants to the gold fields of California used it in 1849, and the Butterfield Overland Mail Stages used the route from 1858 to 1861. Vallecito Stage Station became the center for desert



Sand Buggies on a Desert Outing.

Courtesy Holly Corporation

travelers, gold seekers, Mexican immigrants, and desperadoes. The quartering of U.S. soldiers in Vallecito helped to bring law and order to this outpost and along the routes of travel.

Around 1880, U.S. Government land surveys were being made in this desert. Speculators began to homestead, only to abandon their holdings after several years of unfruitful struggle. Lack of rain, summer heat, and Indian raids kept all but the most hardy from settling permanently. Now, thousands of Californians and tourists use this desert region for outdoor recreation.

In 1933, local organizations and individual land owners donated approximately 275,000 acres of land to secure the formation of Anza Desert State Park. Land patented from the U.S. Government and acreage purchased with park funds comprised the remaining acres. Since the initial acquisition, additional parcels have been acquired.

Anzo-Borrego Desert State Park offers many ways to enjoy one of the last remaining natural outdoor areas in Southern California. The Park offers many miles of trails, many of which follow the routes of the early day residents of the area, the American Indian. Here are a few of the popular desert trips and trails:

Borrego Palm Canyon Trail: Starts at the parking lot near the mouth of Palm Canyon. It traverses a rocky canyon on an easy foot trail, along a

small rivulet of cool water, for a distance of 1½ miles to a grove of native Palms. This is a self guiding nature trail.

Split Mountain: Fish Creek, Mud Hills, Sandstone Canyon, and many other spectacular areas of eroded desert topography. Some of these points can be traveled in an ordinary passenger car. Be sure to check with the Ranger living near the entrance to Split Mountain before traveling too far. Outstanding geological formations can be found in this area. Also a fine grove of Elephant trees nearby. A primitive camp area with pit type toilets and trash barrels is located near the Ranger Station. (Bring your own water.)

Fonts Point: Vista del Malpais, Palo Verde Wash, Calcite Mine, 17 Palms Oasis, and many other interesting views of the "raw" desert can be had by traveling along the Truckhaven Trail. Parts of this route of travel can be made in an ordinary passenger car at certain times of the year. Check at the Park Headquarters before attempting this route on your own. Many spectacular views of the Borego Badlands can be seen from this area.

Coyote Creek: Has a year around stream running down it whose headwaters are Santa Caterina Springs. One must travel this stream bed en-route to Indian Canyon, and Sheep Canyon, where a Park Ranger and Campground are located.

Agua Caliente Springs and Vallecito Stage Station are operated by the County of San Diego. At the former is a camp and trailer park, store and gasoline; at the latter, one of the famous stage stations of the old Butterfield Overland Stage Line, are picnic and campground facilities.

Mountain Palm Springs: Is the location of several striking groves of native California Fan Palms, *Washingtonia filifera*. A few elephant trees, *Bursera Microphylla*, also can be seen in the area. Ordinary passenger cars may drive into the parking area. The groves are reached by foot, the longest trail is about 2½ miles round trip. (Bring your own water.)

Bow Willow Campground and Ranger Station: Is located at Bow Willow Springs, which was the site of an ancient Indian village. One may see morteros in the granite boulders, and broken pottery strewn over a wide area. A developed campground is provided with limited water supply. A Park Ranger is stationed here the year around and will be directing you to many interesting and fascinating places. Ordinary passenger cars may be driven into the area. Evening campfire programs are held in the busier seasons and weekends.

Blair Valley: Is one of the year around "use areas" of the Park. It is located at an elevation of 2500 feet, and surrounds a dry lake. Yucca and Juniper Trees are mingled among the Agave and Cacti. A ranger station and primitive camp are located in the Mesquite trees near the edge of the dry lake. A paved County Road passes through the area. Also, the old Butterfield Stage Road, and the route of the Mormon Battalion can be seen where they hewed a passable route through Box Canyon on their way north. Water is scarce, so bring your own. House trailers and campers find this area very interesting and accessible for year around use.

Visitors are warned to observe the heavily posted Carrizo impact area where Navy ordinance disposal teams detonate unexploded bombs, rocket heads and other ammunition.



The 17,000 acre deactivated bombing range has been closed to entry since 1962, and Navy and state park personnel hope to decontaminate the area within three to four years. With more than 470,000 acres in the park, and with adequate posting, there is no possibility of the visitor entering the closed area without knowing it.

SPECIAL RULES OF THE DESERT

Pack and Saddle Animals are permitted anywhere in the park other than in established campgrounds, developed areas, and in Borrego Palm Canyon.

In order to protect all visitors from bogging down in the sand, as well as to preserve park features, vehicular traffic is restricted to established roads and approved routes of travel.

State Parks are established to protect within their boundaries all vegetation, wildlife, and geological and other features. Therefore, hunting is illegal, as is the possession of loaded firearms or other hunting devices.

Prospectors and miners must register with a patrol ranger or at headquarters and obtain specific information, as only part of the park is open to such activity, and only under certain conditions.

Litter detracts from the beauty of the desert. Please deposit cans, bottles, papers, and rubbish in refuse containers if available; otherwise take all these things home. Never bury any. Animals will uncover such places and scatter garbage and cans almost as soon as campers leave the area.

Ground fires are prohibited. Use oil or gas stoves, or an open fire if it is in a container off the ground and using manufactured fuel such as Presto-logs, charcoal, etc. The gathering of any type of fuel from the Park is prohibited.

Indian artifacts may not be disturbed or removed. Evidence of past civilizations are protected by State and Federal laws.

Rangers systematically patrol the park and assist visitors.

Temperatures range from near freezing to over 120 degrees. The air is usually dry. Rainfall varies greatly. At Borrego Palm Canyon Campground it averages 5 inches a year. Headquarters for the park are at Borrego Palm Canyon, about 3 miles west of the community of Borrego Springs, San Diego County.

State Park rules and regulations may be obtained at State Park Headquarters or from any of the patrol rangers. Regulations have the force of law and have been adopted to protect the people's investment in the natural values preserved by the State Park System.

For additional information contact the PARK SUPERVISOR, ANZA-BORREGO, DESERT STATE PARK, Borrego Springs, California.

Hot Mineral Springs And Spas



The hot mineral spas near Bombay Beach and Niland, have had a hectic history. For a number of years, groups of senior citizens formed a small informal community of as many as 1,500 persons, who gathered to enjoy the healing properties of the Hot Mineral Well. The spa was north of Niland, just off Highway 111.

Today, private spas operate and offer facilities for the ever-increasing visitors to the area. Whirlpool baths, modern trailer parks are a far cry from the early days when the squatters took up donations to build pools.

The first well was drilled in 1906 by V. R. Dennis Company of San Diego. The company wanted enough water to wash the crushed rock which was being used to build structures for the Coachella branch of the All American Canal. They were supplying material for contractors for the U. S. Bureau of Reclamation, during this time. Although they had an abundant supply of rock, there was no suitable water available.

The company drilled several hundred feet before striking water, and it began bubbling out of the ground at 180 degrees. The heavily mineralized water builds up minerals similar to the coating in a tea kettle, and was not suitable for washing the gravel and rock.

It is believed that the San Andreas Fault line that runs just below this original well, is the source of the hot rock that heats the water. Reports of water flowing down the nearby Chocolate Mountains, were made even before the building of the Coachella Canal. The water is dammed off underground by the fault line displacement and shifting of layers of sands and gravel. The drilling of the well enabled the trapped water to escape.

Because the first well was not suitable for their purpose, the company tried again and drilled further up the hill away from the fault line. This too, was a disappointment as there was not adequate water for their purpose. The second well was cooler (137°) and was used for many years for drinking purposes by the health-seeking visitors.

Although the hot mineral well was capped, over the years the casing rusted off and the hot water gushed over the desert. For years, the well was forgotten.

Theodore Pilger, exploring in the area about twenty years ago, found the spring and recognized its possibilities as a hot mineral bath resort. He got a lease from the government and managed to gradually build bathing pools and put in a few improvements.

Unfortunately, although Pilger had the foresight and determination, he lacked capital. He tried to interest Imperial County into developing the hot spa into a resort, but the county was not receptive to the idea.

Pilger operated the Spa for a time, but lost his lease in 1957. He later moved across the County line to his own property, which was only a few hundred feet from the Spa, and operated there for a time. His efforts did

much to publicize the area and the health value of the hot mineral baths.

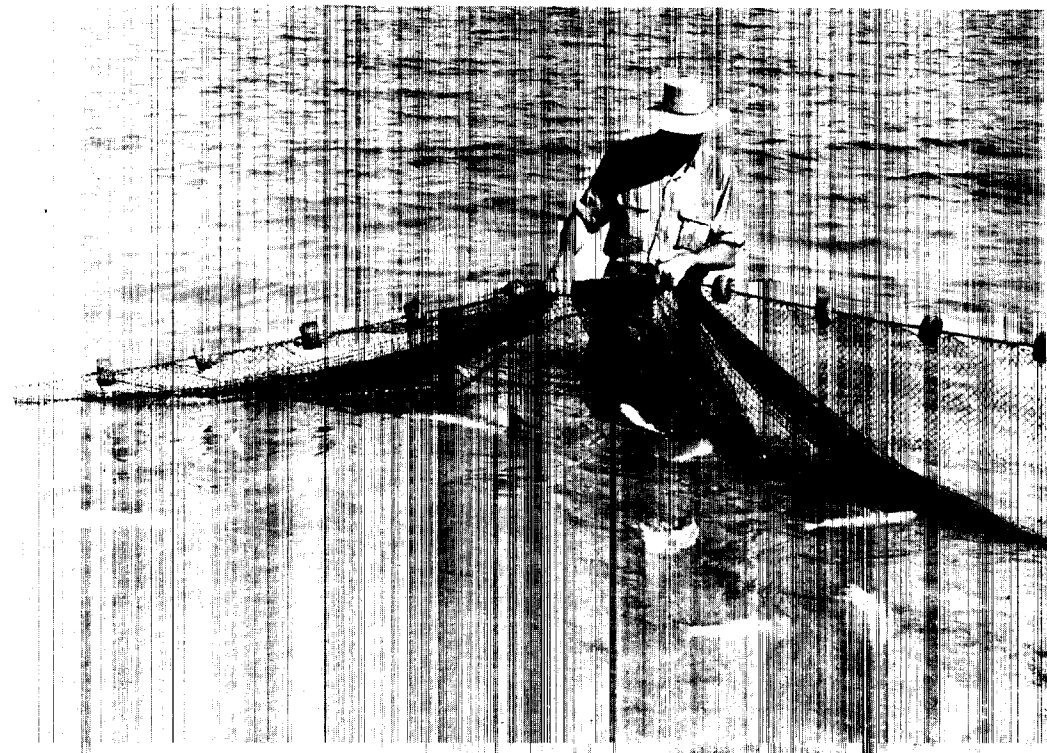
For a number of years, the Spa was run by groups of squatters. Their efforts to establish a community in the area would make an interesting volume in itself.

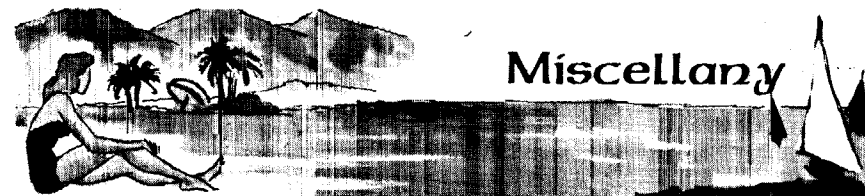
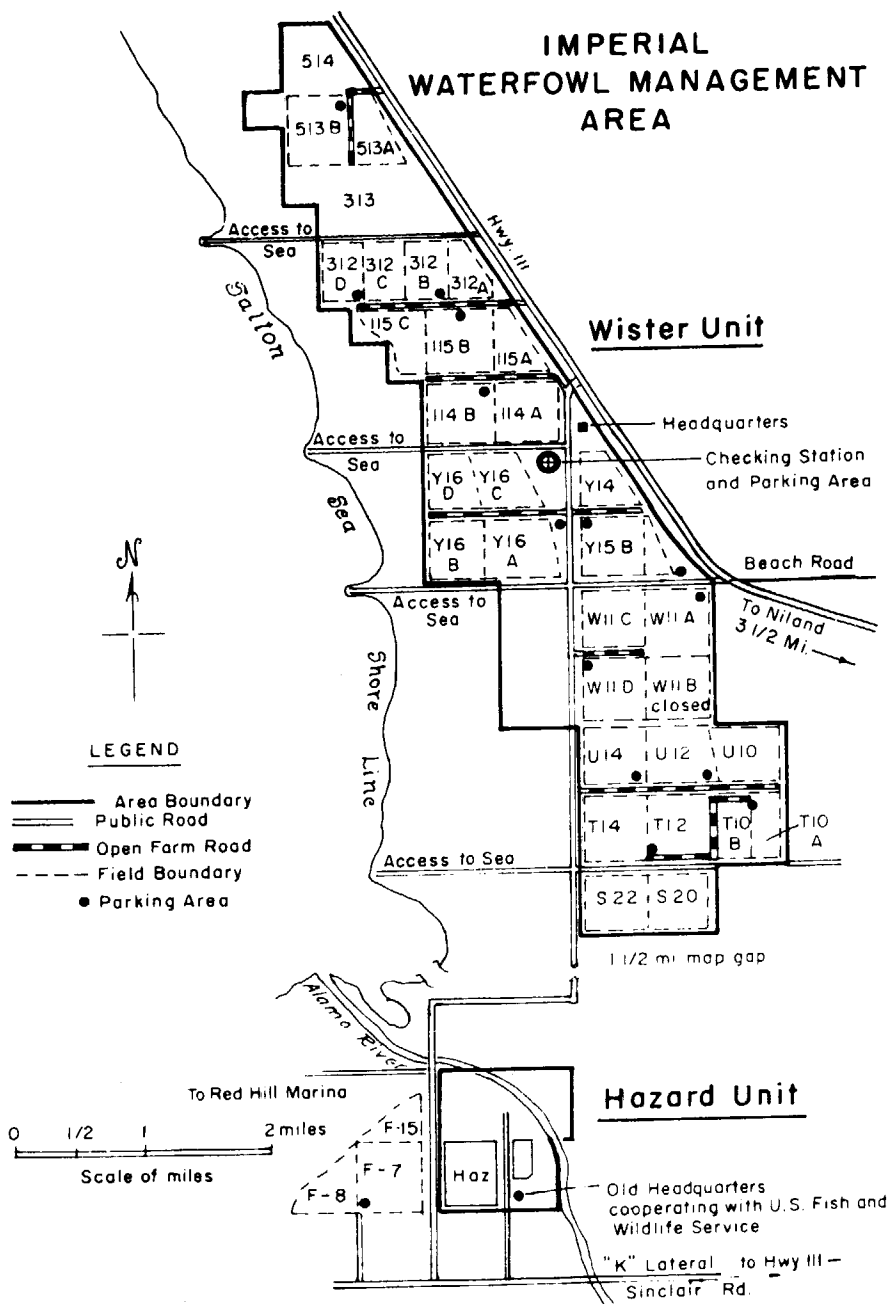
Today, private enterprise has begun to develop the area. The Lark Spa, a new development, is filled to overflowing with trailerites. Bashfords' Hot Mineral Spa across the road from the original spa, is a favorite of many oldtimers.

Realizing that it was possible to drill other hot mineral spas in the area, J. T. Trily and Frank Domeno, owners of the "Fountain of Youth" spa, spent more than two years searching for the proper site for drilling. They used air photos of the San Andreas Fault, walked the terrain, dug a lot of holes, and gathered more than 170 water samples. They finally selected their spot, and drilled their first well which turned out to be a dry hole. Persisting further, they moved about 130 feet southeast of their original hole and tried again. This time they were successful, and brought in a hot mineral well with a temperature of 135°. Since that time, they have developed a modern spa, and have plans for a new community.

With the success of these new spas, there is no doubt that the area will become a popular resort center, with more development and spas sure to follow.

Netting Corvina at San Felipe, Mexico, for Transportation to Salton Sea.





Miscellany

The Salton Sea — over 35 miles in length, over 12 miles wide, and approximately 232 feet below sea level — presents to the boatman some conditions of wind and water not likely to be encountered in other areas. Advance awareness of these conditions will add greatly to your pleasure and safety in boating on its waters.

As the Salton Sea is comparatively shallow (average depth 10 feet) sudden strong winds — especially from November through April, but also during the balance of the year — create short, heavy swells, 3 to 6 feet high, which make small boat operation unsafe. If winds begin to rise when you are out on the water, safe practice dictates setting a course for shore. If winds continue to rise at an alarming rate — set a course with the wind regardless of where you beach. Remove the boat from the water, as considerable damage to beached or moored boats may result from the action of high waves.

The land surrounding the Salton Sea is flat; consequently, even the slight rise in water level which occurs during a storm can cover shoreside brush, fence posts, and concrete abutments, creating underwater hazards for the boatman attempting to maneuver along the shoreline. Much of the Sea has a soft mud bottom, which may make wading ashore dangerous.

HINTS FOR SAFE BOATING

- Visiting boatmen should seek advice regarding the weather from local residents and marinas. All marinas have Citizens Band radios, and monitor either Channel 9 or 11.
- Occasional dense sand storms, which can reduce visibility to zero, are an additional hazard. No boating activity should be attempted during these storms. Dust clouds or thunder clouds usually indicate strong winds.
- Salton Sea is located in an area of intense summer heat, which often exceeds 100 degrees. Protection against sunburn or sunstroke is imperative — a hat or other head covering is a must. Fresh water should always be carried.
- Underwater obstructions close to shore are always present. A sharp lookout for such obstructions should be maintained even during periods of calm.

ROCK HOUNDING POPULAR IN SALTON SEA AREA

Rock hounds, pebble pups, mineralogist and historic geologists find the Salton Sea area a bonanza to explore. The Imperial Valley Development Agency puts out an excellent map of interest to these groups, and it may be obtained by writing to P. O. Drawer 1.V, Imperial, California.

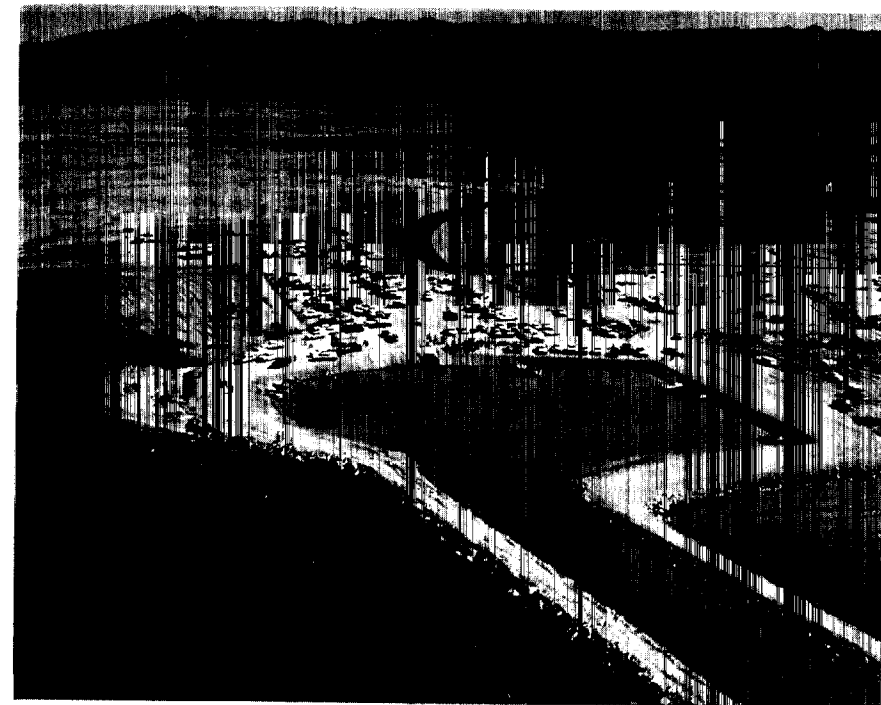
Group field trips may also be arranged by contacting the above agency or the Imperial Valley Gem and Mineral Society at the California Mid-Winter Fairgrounds, Imperial, California. The Society maintains a permanent museum of stunning gems, minerals and fossils, with emphasis on specimens from Southern California, other western states and particularly Imperial Valley.

Imperial County contains the widest variety of gems, minerals and fossils of any county in California. Fossil locations offer the collector a selection unequaled in any other part of the western United States. One of the reasons for this rich, endless variety throughout Imperial County is because sections of three geological ages are exposed, plus the presence here of a large glacial float which abounds in materials normally found only in other states, for example: Montana agates, Arizona petrified wood, and jasper and fossils not native to this region.

Among the myriad selection of rocks and gem-stones found in Imperial County are the following: geodes, nodules, chalcedony roses, fire agate, petrified wood, palm root, palm fibre, sagenite, bog, jasper, sand stone and sand spikes, dumortierite, plume agate, moss agate, wonderstone, spherical rhyolite, calcite and quartz.

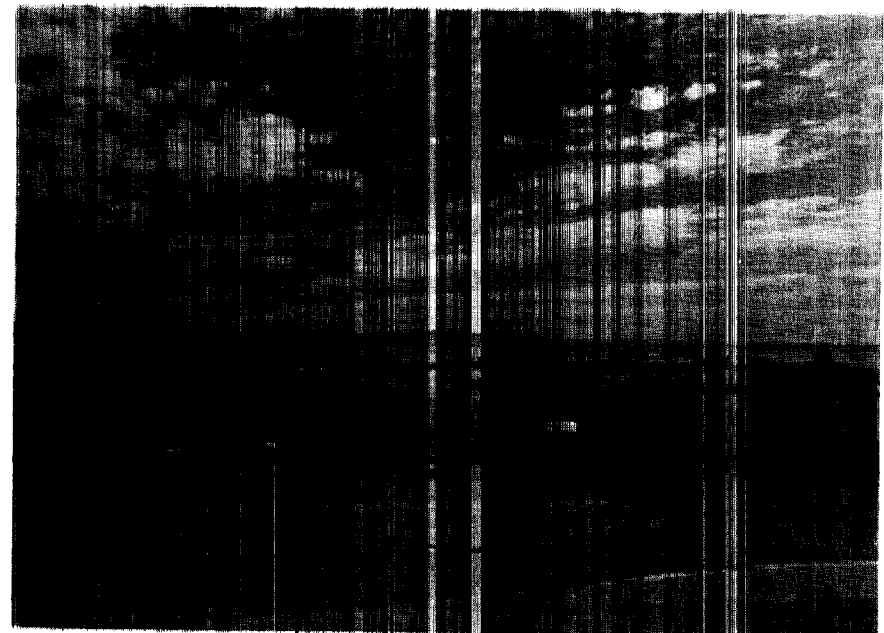
Many minerals and metal-bearing ores abound in Imperial County, including gold, silver, manganese ore, copper-bearing ores and by-products, limestone, asbestos and gypsum.

In addition to the semi-precious stones mentioned, several kinds of precious gem stones have been found in Imperial Valley.



Aerial View of Niland Marina.

Harbor at Helen's Beach House, Salton Sea Beach.



Planting Corvina in the Salton Sea, 1951.

Department of Fish and Game Photo

CHURCHES AND SCHOOLS

Churches and Schools are the cornerstone of civilization and we duly appreciate their importance. The four towns above named have each a creditable school building, and Coachella and Thermal have regular Sunday school and preaching services every Sunday, the latter having a beautiful church building.

No Saloons

We take special pride in the fact that we have no moral-blasting and death-dealing saloons as snares and pitfalls of hell for our promising youth. The saloons have been voted out of Riverside county years ago, and we are prosperous and happy as a direct result.

Newspapers

Two creditable weekly papers are published, one in Thermal, called the "Submarine and The Valley News at Coachella." A fine telephone system connects the farmers with the outside world and with each other.

We have lumber yards, machine shops and department stores in all the above towns, carrying a full supply of all the necessities of life.

Excerpts
From An Old
Brochure
Published
In
1907



PRICE OF LAND.

Just now, 1907, we can sell you good raw land from \$30 to \$50 per acre, and improved farms from \$100 to \$300 per acre. These prices are all bargains, when the wonderful yield per acre is considered. President Roosevelt in his recent message said that these lands would be worth \$500 to \$1500 per acre soon, and who can doubt it? Three-year-old grape vines are worth more than that, and will pay good interest on \$2000 per acre. If you are interested come and see us while we are offering special bargains.

THERMAL REALTY COMPANY

O. C. EBERHART,
Thermal,
Riverside County, Cal.
L. C. PFAFFENBERGER,
1427 Pleasant Ave.,
Los Angeles, Cal.

Phone Boyle 87.

WATER SUPPLY.

However, better than all we have an abundance of pure soft water from hundreds of artesian wells; and one of the charming sights that greet the stranger are these sparkling, bubbling fountains, provided by kind Providence, giving to the farmer his own water works. No galling water rights (wrongs) or bonded irrigation schemes and life-long assessments and no water-bosses "lording it over you" in the Coachella valley!

WOOD FOR FUEL.

Add to the wonderful blessings of our soil and water a generous supply of good hardwood for the grate and kitchen range, and one begins to feel as though he were really coming to his God-given right to till the soil and reap all the benefits of his own toil! Draw from the kitchen range a plump, fat turkey "brownied to a frazzle," together with delicious baked yams and the many toothsome products of the field, and the picture is complete of an independent farmer's happy home—provided love is there, and all because there is wood, wood, wood to burn! Thousands of cords are annually shipped out to less fortunate places, and thus literally lining the farmers' pockets with silver dollars.

Excerpts
From An Old
Brochure
Published
In
1907

THERMAL

IS AND ALWAYS WILL BE THE CENTRAL AND
Leading Town of the Coachella Valley,
Riverside County, California.

It is Surrounded by SIXTY THOUSAND ACRES of Rich Irrigable Land, Has a great abundance of PURE SOFT WATER for irrigating and domestic use. Is the headquarters of the COACHELLA VALLEY TELEPHONE CO. Has the only Church Building in the Valley, a fine new one. Has the only newspaper printed in the Valley, "THE SUB-MARINE," only One Dollar per year, (send for it). Has a good Lumber Yard, Hardware, large General Merchandise Store, two large Packing Houses, nice School House.

There is a fine opening here for a Livery, a Blacksmith's Hotel, a Shoe maker, a Grocery.

LOTS FOR SALE CHEAP

To parties who will improve.

ADDRESS

THERMAL LAND AND TOWN CO.

Thermal, Riverside Co, Cal.
South Pasadena, Cal.



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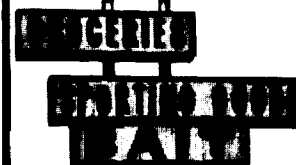
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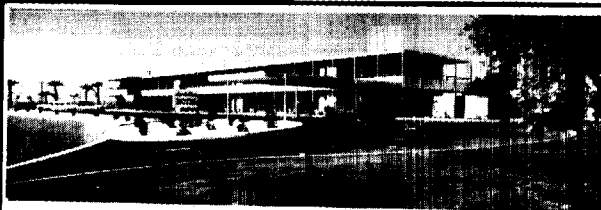
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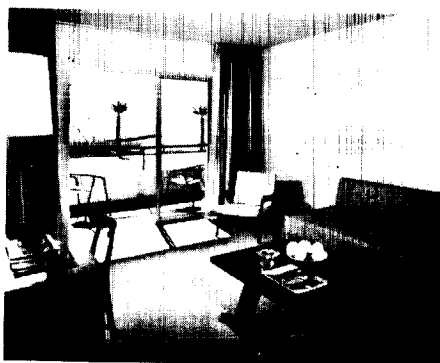
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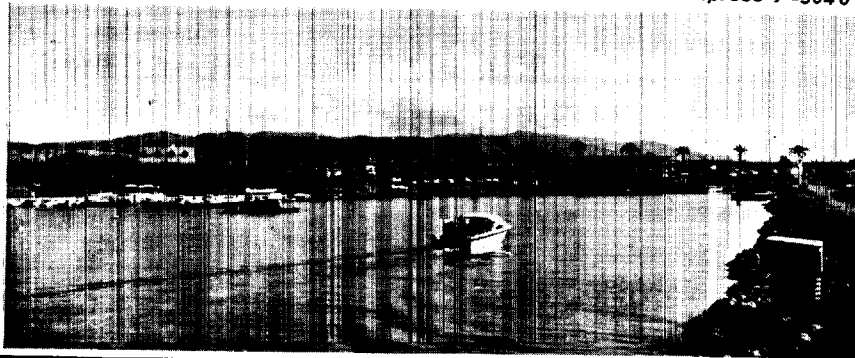


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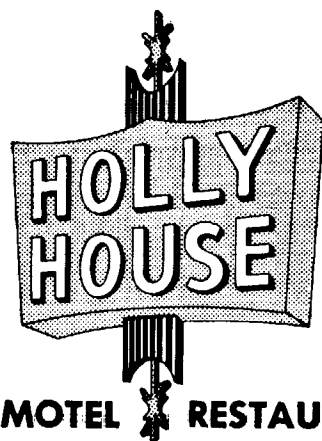
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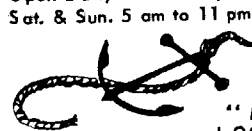
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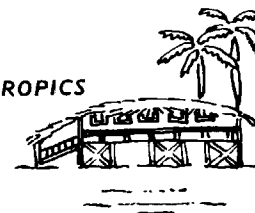
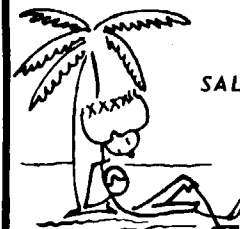
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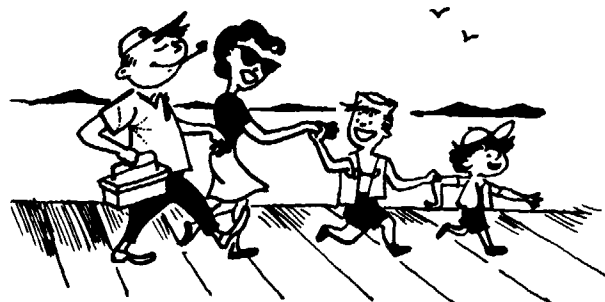
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If you are here at our Shop when you read this, or happen to visit us someday, the sturdy structure of the wood framework will intrigue you. Here is its history:

The redwood rafters are old Western Union telegraph poles. They carried the wires paralleling the Southern Pacific rails through the Coachella Valley Desert to Yuma, Arizona, when it was first constructed in 1877. The shop pillars and beams were bridge timbers supporting the railroad over the Desert washes two generations ago. For nearly 30 years they served that purpose.

In 1905, the overflowing Colorado River, through an irrigation break below Yuma, began filling the Salton Sea. The rising waters covered the tracks and telegraph line. These same poles, bridge timbers and railroad ties, removed at that time, lay on the desert for another 30 years, until they finally contributed their age-weathered beauty in the building of this — now world famous — VALERIE JEAN DATE SHOP — still operating since 1928, under its original founder and owner, RUSS NICOLL.

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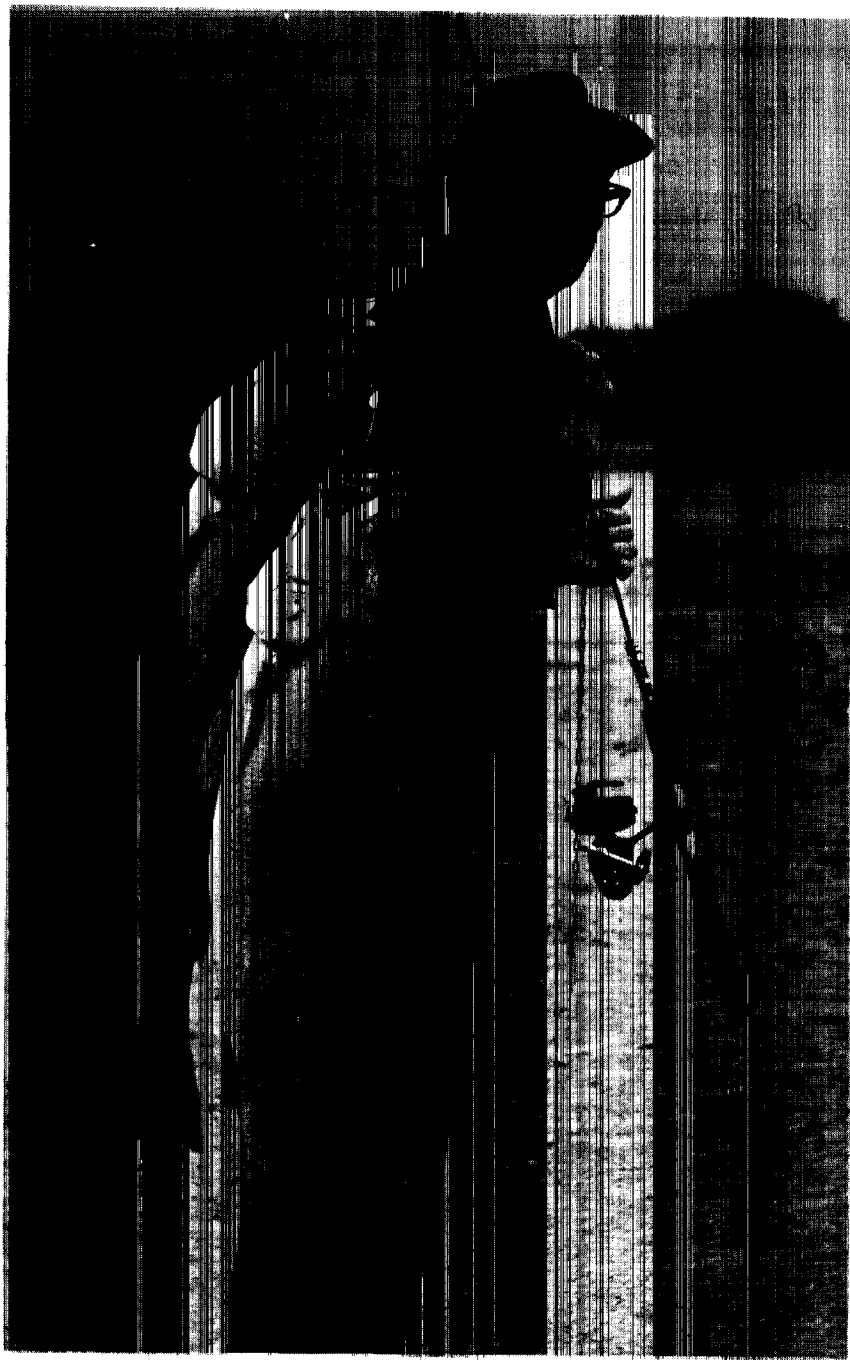
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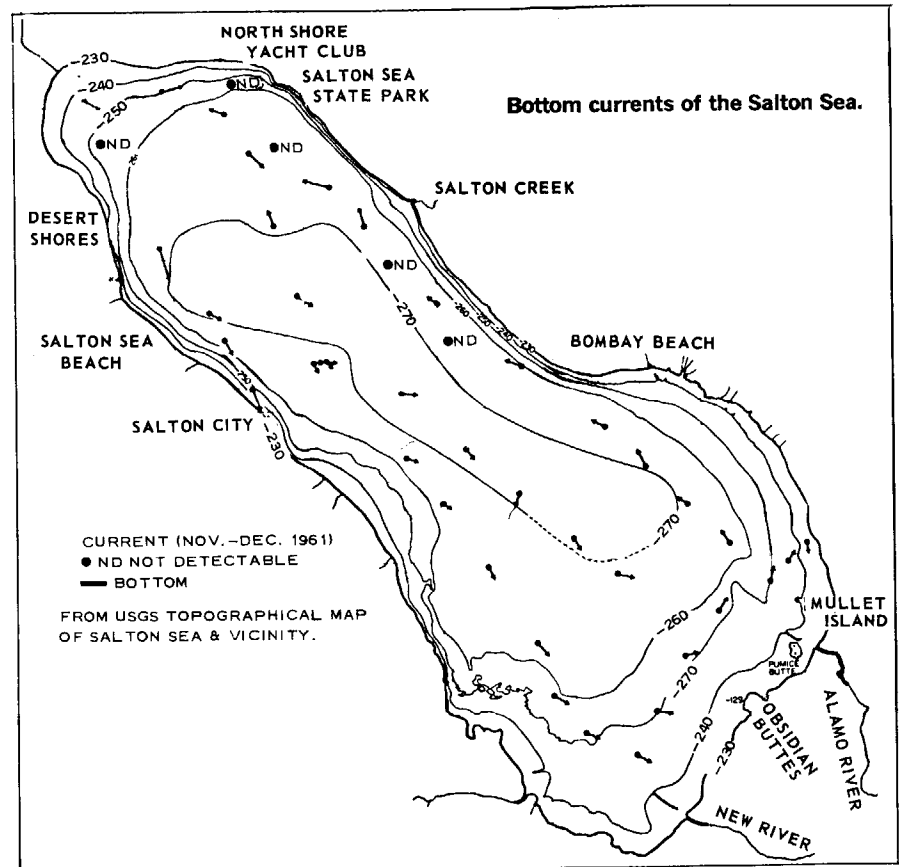
BEER & WINE



Mike Leonte displays 16 and 17 pound corvina caught on mudsuckers off Desert Shores.
(Mike's Tackle Box Photo)



Shields Date Gardens, one of many fine date shops in the Indio area. They are famed for their showing of the free movie "The Romance and Sex Life of the Date"



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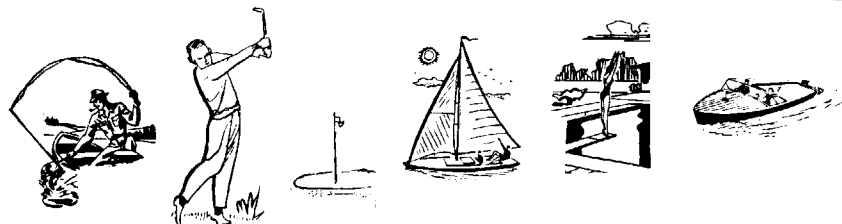
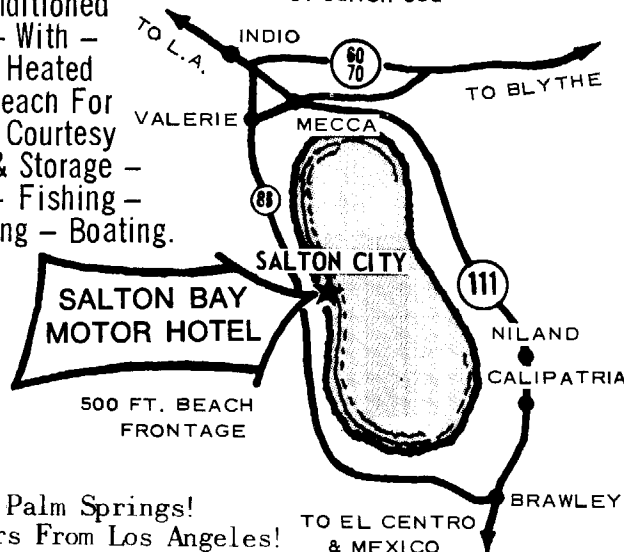
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Waiting for land prices to drop?

Forget it! Especially if the land is recreational land. With Californians having more leisure time and higher incomes, the need for recreational property and facilities is becoming more apparent. Southern California is simply running out of recreational land. And it is not just us the experts are concerned about; it's the rest of the 13 million Southern Californians who will be here soon. Where will they go to have fun and relaxation?

One thing is apparent... with the disappearance of recreational land, especially land close to water, the values of the remaining property should naturally rise. It is just now beginning to show down at Salton City and people are awakening to the fact that they are or should be sitting on top of what is going to be the greatest inland water resort in California... and soon!

Doesn't this ring a bell? Can't you recall Grandpa saying if he

had foresight, he would have put a couple of bucks down on a particular parcel of land 15 years ago and the whole family would be wealthy now?

There still are opportunities like that, but don't believe us... until you see for yourself. See what's happened at Salton City in the past couple of years. New industry, new marinas in the planning stage, our 18-hole golf course, businesses, restaurants, motels, and homes by the score. Our first school will be dedicated this year.

As a matter of fact, we would like you and your wife to spend a day with us and take our free land cruiser tour of the complete desert recreational strip, Palm Springs and Salton City. Have lunch with us at the fabulous Salton Bay Yacht Club and let us show you what we are talking about.

After all, who knows more about Salton City than the people who are building it?

SALTON SEA MAR VISTA

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